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CLINICS.

Clinical Lectures.

ACUTE TRICHINIASIS, MARKED BY CONTINUOUS FEVER
AND SEVERE MUSCULAR SYMPTOMS.

A CLINICAL LECTURE DELIVERED AT THE PENNSYLVANIA HOSPITAL,

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[Reported by Frank Woodbury, M.D.]

GENTLEMEN: The case now before you is a striking one from more than one point of view. It presents a typical illustration of a disease which I have rarely had the opportunity of presenting before the class. It is interesting in its causation and the question of possible prevention. It is instructive in the accuracy of which the diagnosis admits.

In narrating the history of the case I shall tell you particularly of the condition of the patient when he entered the hospital, for it was a little different then from his present state. His name is Richard E.; he is a German, 20 years of age, a machinist by occupation. He stated positively that he had always been in very good health up to the beginning of his present illness. For a week or two before admission into the hospital, which was on the 7th of December, he suffered from cold in going to and returning from his work. But as he had no underclothing and only wore his overcoat on Sundays, it might be naturally supposed that want of proper clothing was the cause of the chilliness. However this may be, he says that about four days before admission, and following the chilliness of which he complained, he had headache and muscular soreness; he was also very restless, the skin was covered with perspiration, his extremities were cold. This discomfort increased rapidly, became attended by fever, loss of appetite, and constipation; on the day before he came here he had a spell of vomiting. There had been no convulsions, no active delirium, and no signs of brain disorder beyond a dull headache, with confusion of ideas. Now it was in this state that he sought admission into the hospital. When I saw him I was much struck with the appearance of his face. It was flushed, and had a bloated look; the fulness was not confined to the eyelids, but was general, diffused, and had changed the expression of the

entire face. His eyes were clear, the pupils rather dilated. He was, when I met him, wandering in an aimless sort of way at the hospital gate. His face gave me the impression that he was a case of typhoid or rather of typhus fever, though it was not so deeply flushed as we find it in this complaint. His joints were not affected; they were not markedly swollen and certainly were not discoloured, nor were they the seat of special heat or pain. He persisted, however, in calling our attention to the general muscular aching, the stiffness, and the tenderness, at least so far as he spoke of anything, for he was very dull in his mind. Though he was stupid, he was at the same time extremely restless; the muscular soreness was so great that he could not rest, and he did not seem to be able to make himself comfortable in any position. His tongue was red and slightly coated; the breath very fetid; the abdomen swollen; the feet were also a little swollen, but there was no pitting upon pressure. The general surface seemed more or less bloated and pale, there was no eruption of any kind. The urine was of the specific gravity of 1026, acid in its reaction, and contained an excess of urea and of urates, but neither albumen nor sugar. He had a temperature of 104° in the axilla; his bowels had been constipated for several days. He was purged with castor oil, he had quinia given to him, and subsequently muriatic acid, and various means were tried to relieve the muscular soreness. The redness of face soon passed off, and it became pallid and looked swollen; but it did not remain so, the puffiness disappeared in a few days. A slight œdema of the lower extremities, shown especially by the pitting on pressure at both ankles, also passed off in a few days.

The tongue, as you see, has remained red; his appetite is better, indeed it is very good; the fetor of the breath has measurably disappeared; he still complains greatly of the muscular pains. All this time he has had a fever temperature; in the first six or seven days after admission it did not pass below 101° , and ranged between this point and 104° .

Abdominal soreness he has not got. There is some tenderness in the muscular wall, especially is this noticed in the chest, and there is soreness too in the muscles of the extremities, though by no means so much as it was some time since. The respirations have never exceeded twenty-six in the minute, have been more generally twenty-two, and regular. The heart sounds are distinct, evidently no valvular lesion exists, but towards the left base can be found a faint anæmic murmur. The respiratory murmur is everywhere well heard. Now, what is the matter with the patient? Is it muscular rheumatism? Dengue, or breakbone fever? Is it typhoid fever? We concluded that it was not a case of muscular rheumatism, not breakbone fever, and not typhoid. The muscular rheumatism view had a good deal in its favour; his exposure to cold and his insufficient clothing, the great muscular soreness, the chills. But I could not account in this view for the continued fever, the stupor, the expressionless bloated face. The view of typhoid or typhus fever had much to commend it; the continuous character of the fever, with only slight remissions in the morning, his nervous symptoms, his flushed, pallid face, all looked like a low fever. The absence of enteric symptoms was against typhoid but not against typhus; but the absence of eruption was strongly against typhus. Dengue, not being a disease of this time of the year, and not belonging to this latitude, I need not discuss; the symptoms, moreover, appeared too grave for it.

If not any of these affections, what was it? It occurred to me that it

was a case of trichiniasis, a disease produced by the introduction into the system of the trichina spiralis in immense numbers, from partaking of ham, sausage, and other forms of infected pork. The view of trichiniasis gained upon me, I may say upon all of us, for these reasons. Trichiniasis gives rise to a fever that is very similar to that of typhoid fever; we have, in this case, you remember, a low form of continued fever. What also arrested my attention was this: the face looked stupid, swollen, flushed, and then pallid; without there being any albumen in the urine, and the swelling passed off in a few days. This also belongs to the history of acute trichiniasis; this swelling particularly is characteristic, and in most cases is even more decided than in this one before you. But, above all was the great muscular soreness which I was unable to account for as a symptom of continued fever. Nor could it be accounted for as a muscular rheumatism; because the sustained temperature was not that of rheumatism as it occurs in the muscular system, nor in rheumatism do we find the entire muscular system involved, but rather the pain and tenderness limited, especially to certain groups of muscles. Therefore, having all this in mind, I diagnosed trichiniasis. I put the diagnosis to the test, and after some delay, occasioned by attempts to procure instruments for examining muscles—which were found not to work—we etherized the patient, and cut out a small piece of his deltoid muscle. Placing it under the microscope, it was found swarming with living and most active trichinae.

We have then here a case of trichiniasis; and I have told you by what steps we arrived at the diagnosis, which was finally confirmed by the actual inspection of the muscles. You see that it was chiefly reached by exclusion; although there were, as I shall presently explain to you, one or two features in the case, in themselves of direct significance.

But has this patient had all the features of acute trichiniasis? No; a number were wanting, others indistinct. In acute trichiniasis from the introduction into the stomach of infected pork, we have generally much more marked symptoms of gastro-intestinal irritation than were here presented; the parasites in the stomach and bowels occasion them. He had great fetor of breath, and vomiting on the day before admission; but only on that occasion, and there was no diarrhoea, the intestinal symptoms were absent, loss of appetite in the early stage certainly existed, but he recovered his appetite better and much more quickly than most of the cases do. Again in pointing out to you anomalies of the early stages, let me tell you that he denied being fond of pork, ham, or sausage, said that he rarely ate it, and that there was not a single one of his friends in the boarding house where he lived that had similar symptoms or had complained of any signs of gastro-intestinal irritation. Generally the history of several persons being stricken at the same time and being seized with cramps, with vomiting, with purging, is a strong element in the diagnosis of this perilous affection.

Looking now at the chief symptoms of the case, we are first struck with the character of the fever. It was essentially a continuous fever; the highest temperature reached was 104° , and though in the first ten days there were at times quite marked differences between morning and evening, the temperature subsequently became more and more uniform.

Here is the record kept from the day of admission, so slight are the variations between morning and evening that we may take it as illustrating the course of an ordinary continued fever of long duration. With this elevation of temperature he had the accelerated pulse corresponding

to the rise of bodily heat. There was indeed little about the continuous fever that would have arrested our attention as being different from any other fever of the type, except the remarkable absence of cerebral symptoms. Apart from the headache which existed, the fever was marked by the want of hebetude and of hallucinations of every kind, the mind at first dull, became brighter and quite clear, although the fever persisted.

Secondly, what arrested our attention in connection with the febrile state was the unusual *appearance of the face*—the features swollen, the face later pallid, but at first the cheeks and forehead flushed—looking like the face of typhus fever, but not associated with any marked dulness of expression of the eye, nor with that hebetude which is so thoroughly characteristic of the physiognomy of typhus.

Now while we are examining this swelling of the face, which, let me add, was a passing symptom, and which subsided leaving for a time moderately swollen eyelids, I will call your attention to the fact that for three or four days, for even a shorter period therefore than the swelling of the face existed, he had some œdema around the ankles, but without a particle of albuminuria. The slight dropsical symptoms were therefore not among the earliest symptoms, nor were they late symptoms, since they were noticed not long after the patient was admitted to the hospital, and I think existed markedly about the middle of the second week of the disease, and swelling of the face occurred prior to this. The œdema did not pass away in consequence of any profuse sweating, for almost throughout absence of sweating has been a remarkable and unusual feature of the case, unusual because profuse sweats are quite common in trichiniasis.

But after all the most striking symptoms of the case were the *muscular symptoms*. The phenomena were those of a most extended muscular rheumatism. The pains affected the muscles all over the body, and were present whether motion was made or not, although they were very much aggravated by motion; the muscles were also nearly everywhere sore to the touch, and some felt swollen. None were contracted, but some were so much affected that certain muscular movements could not be effected; for instance, our patient could not stoop. The muscles responded to the faradic current; the sensibility of the skin over them seemed normal. The muscular symptoms are directly due to the migration of the trichinæ into the muscles, and to the irritation and havoc in the fibrillæ, and to the inflammatory changes in the sarcolemma, by which the capsule that stops their mischievous career is finally formed. Many of the trichinæ we found were very large and very vigorous; indeed, muscular trichinæ are generally large and vigorous; and it is said that they may live or reproduce themselves for years in the muscles of their unwilling possessor.

The muscular symptoms are said not to happen before the tenth day of the disease; but unless we are utterly misinformed here as to the duration of the case, they began to be noticed in the first four or five days of the illness. Let me add, that of the many local means that were tried for the relief of the local distress but one seemed to be of any benefit, and that was a liniment containing about one ounce of chloral to four of camphorated oil. Let me also again impress upon you that attending the muscular symptoms was an amount of prostration and low fever, which was entirely unlike what occurs in ordinary rheumatism; and that, on the other hand, the muscular pains were greatly in excess of any which would happen in a continued fever.

January 15th, 1881. Gentlemen, after the lapse of three weeks, I show

you this patient again; and now it is clear that he is approaching convalescence. Indeed, when you look at the good colour of his lips, his improved general nutrition, the fact that he can perform a number of movements well, which previously stiffness and pain prevented him from executing, all demonstrate the correctness of this conclusion. Accepting it, let us discuss what has become of the trichinæ. Under the treatment of moderate doses of quinia and of tincture of iron, under good food, and after the diagnosis of trichiniasis was made, under carbolic acid, under anodyne liniments, and occasional hypodermics of morphia, the symptoms have much ameliorated; some of them have passed entirely away. To what shall we attribute the striking change? I should like to say to the carbolic acid, but I cannot think it would be a truthful inference. I think that he would have recovered without it, because improvement had commenced before he began to use it. I believe his recovery was due to a good constitution, good nursing, and good food, enabling him to withstand the shock of the mishap until time had brought about certain curative processes, which I shall presently explain to you.

You will ask me what is the ordinary course of the disease, and is recovery from trichiniasis the rule? Also, under what plan of treatment does recovery most often take place? Gentlemen, the course of the disease is very uncertain, being influenced by the accident of the intrusion of the disease into internal organs impossible to foresee, but the duration of the disease is generally very protracted, the muscles being affected in their movements for a long time by the multitudes of trichinæ which become deposited in their structure. Until the parasites become encysted or encapsuled in the muscular fibre, more or less irritative fever persists, the patient begins to recover only when the trichinæ become incarcerated. Subsequently these living worms, after a certain lapse of time, thus far undetermined, perish, and their cysts undergo calcareous degeneration, or it may be that calcareous deposits take place in the capsule, and the parasite becomes choked up with the earthy salts. While this is going on the fever gradually declines, and the muscular soreness and stiffness are gradually relieved, but the impairment of muscular power is much more permanent. In the present case, you have observed a continuous fever lasting over four weeks, and you see that it is only in the last week that the temperature has reached the normal. There is a steady decline from the time of admission; but it did not really descend to the norm until four days ago. It is a continuous fever, varying slightly from week to week, and gradually lessening; but for all this it does not reach the healthy standard until the fifth week, going hand in hand with this process of encapsuling; which, however, is far from complete, for in a specimen of muscle just examined we still find some very lively trichinæ. But does recovery always take place? By no means; of course it does not where the nervous system is invaded or prominently implicated, or the respiratory muscles attacked, and their functions crippled, or where long-continued diarrhoea exists. But even in cases such as this, chiefly marked by the muscular symptoms, and presenting these in a striking degree, the patient often dies from the universal presence of trichinæ in the muscular system, and the irritation they cause. Moreover, although this was not here the case, frequently recovery is impeded or altogether prevented by very decided coexisting affection of the gastro-intestinal tract, producing long-continued vomiting and purging. While this renders the diagnosis much easier, it is a bad thing in point of prognosis, because, in these cases of

gastro-enteric irritation, there is not only an element of additional exhaustion thus acting, but they leave behind them dysentery, diarrhoea, and chronic bowel complaints, or affections of the stomach.

Is recovery complete in those muscular cases where, as here, a cure is apparently obtained? Will this man recover entirely? I think yes. The chances are that every trichina will become encapsuled; I see no reason why this should not occur. At the same time, I will not say that a man in whom exist many millions of trichinæ imbedded in his muscles, as I believe is the case in our patient, would ever be as strong as he was without them. But we may tell him that he will recover completely to all intents and purposes, be fully able to earn his livelihood.

The treatment, as you are aware, was conducted mainly—excepting the carbolic acid—upon the general principle of supporting strength and relieving pain; the great object being to keep up the patient's strength until the parasites became encysted and harmless. But you may inquire, Is there nothing specific to cure trichiniasis by killing the trichinæ? I tried carbolic acid in this patient; but, as I told you, I cannot claim that it was very effectual, because recovery had already begun before it was administered; still it was well borne, and I think the patient improved more rapidly under its administration than before. I shall, in other cases, try it again. It does not disturb the stomach, and on account of its destructive action upon low forms of life, it may, if we can get enough into the system, poison the parasite. Let me add that under the field of the microscope the trichinæ we found live less than a minute on addition of a concentrated solution of carbolic acid.

Benzine, given internally, has been highly recommended for the purpose of their destruction; but the German physicians, who have the greatest opportunities for studying trichiniasis, have abandoned the use of benzine; and so with picric acid, urged for a time as a valuable remedy, it has now entirely fallen into disuse; and calomel, oil of turpentine, and electricity have proved very disappointing. The treatment now followed by several distinguished authorities, consists in giving large doses of glycerine, based upon the observation that when the living trichina is placed in glycerine, it quickly shrivels and dies. We have ourselves tested the matter here, and Dr. Jimenez, the resident physician, found, no matter how active the trichinæ under the microscope, that they perish at once when brought in contact with a drop of glycerine. I would advise you to try glycerine early in a case; at all events it will kill most likely the trichinæ in the stomach and intestine, without being injurious to the patient. Whether it will kill those in the blood and in the muscles is a different question, and I doubt much whether any amount of glycerine given by the mouth will accomplish this. But laying aside the administration of glycerine and of carbolic acid, the main treatment is, I regret to say, nothing better than to support the patient's strength until the encapsuling is accomplished.

Let me say, in conclusion, a few words about the way in which we got at the trichinæ. We had, as I told you, to cut down upon the muscle after etherizing our patient. This, you will admit, is not a pleasant method of diagnosis, but we were obliged to do it; for we found that the ordinary Duchenne trocar, and the harpoon made for the purpose would not work. They fill with blood; they do not extract the muscle. Nor was another appliance, sent by an instrument-maker, more successful. It was very large; a kind of a cross between a bullet extractor and an obstetrical forceps. Dr. R. N. Hart, one of the resident surgeons of this hospital, then came to our assistance, and has invented an ingenious instrument for the object of ex-

tracting muscle for microscopical examination, which promises to be very valuable. I here show you the instrument, which we have now used several times with great ease, and which I shall describe to you in Dr. Hart's own words.

The instrument consists of a small trocar and canula, with a supplementary trocar bearing a peculiar-shaped point (see fig.), the object of which is to secure and remove a small portion of animal tissue for examination. After the plain trocar and canula are inserted into the interior of the muscle or tumour, the trocar is withdrawn, leaving the canula in place. The stylet or cutting portion of the instrument, consists of a steel stem, of the same diameter as the first trocar, at the end of which is a contracted portion, and terminates in a cutting screw edge. By a few rotations of this instrument a fragment of tissue can be secured and removed through the canula. If the first attempt is unsuccessful it can be re-introduced, and any number of successive specimens removed without the necessity of a second puncture, as would be required in using Duchenne's instrument.

Feb. 15. I add a short note concerning the further progress of the case. The man walks about the hospital yard, and looks like a well man. His colour is excellent; he is plump. The pupil has lost all dilatation, and he sees clearly. His eye, examined with the ophthalmoscope, showed nothing abnormal. He is capable of performing almost any motion, except that he still stoops with difficulty. The muscles of the calf are harder than normal and their electro-muscular contractility is impaired; elsewhere the muscles all act well to the faradic current. He has lately complained a little of headache and of some stiffness and pain at the back of the neck; but for these lingering symptoms he would have been discharged from the hospital. All trichinæ are not, however, encapsuled in his muscles, a few in a piece taken out from the forearm with Hart's trocar were still found alive. But the great majority were encapsuled, and the capsule was full of cretaceous salts.

ON TUBERCULAR PERITONITIS IN CHILDREN.

A Clinical Lecture delivered at St. Bartholomew's Hospital.

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GENTLEMEN: There are three kinds of tubercular abdominal disease occurring in children: chronic peritonitis, decay of the mesenteric glands, and ulceration of the intestines. These diseases are sometimes associated in different ways, sometimes they happen each alone by itself. They constitute a condition which the common people call "consumption of the bowels," although this term also includes the chronic enteritis which is not tubercular.

My topic to-day is tubercular peritonitis, or, what in the case of children is almost the same thing, chronic peritonitis.

I. *Pathognomonic Signs.*—They are discovered by physical examination of the abdomen, and are of two kinds: indurations and suppurations.

1. *Indurations* are detected by palpation. They have the form of bands and patches, or of lumps and knots. They certainly are present in most cases at some period or other of the disease. They begin to appear within a few weeks

of the onset of the illness. They are more or less obscured by coexisting tympanites; and for this, or some other reason, they are not felt equally well at all times in the same patient. When the abdomen is very tender or resisting, I usually administer chloroform to the child before proceeding to the examination; and I strongly advise you to do the same thing in a doubtful case. The *bands* which I spoke of are commonly transverse, stretching right across the belly, or confined to one side of it. They are felt above the navel, on a level with the navel, or below it—for instance, parallel to Poupart's ligament. They are sometimes remarkably hard. They are mostly about the breadth of the finger, or rather more. The *patches* of induration, like the bands, may be met with anywhere; in a boy now in the hospital, they are felt in the hypogastrium. The *lumps* and *knots* are sometimes very numerous, sometimes there are only one or two. Their size is very different, they often feel like nuts or pips. They differ very much in situation; there is no rule in these matters. The distinction (not always possible) between peritoneal and glandular lumps is to be found in the fact that the former are as a rule more superficial, less deeply seated than the latter.

2. *Suppuration.* Discharge of pus from the navel, due to a local peritoneal abscess, is likewise characteristic. Sometimes there is nothing more than an appearance of pointing, which afterwards subsides, and never goes on to discharge. The navel looks red and swollen, not merely protruded, but its tissues swollen. This sign I believe to be no less characteristic. The pus is sometimes mixed with feces. This is a condition which indicates ulceration of the intestine, and is a very much more dangerous affair than the discharge of pus alone.

Physical examination will also discover signs of either or both of two other abdominal lesions in most cases of tubercular peritonitis. *Tympanites* to a less or greater degree is a symptom almost always present at some period or other of the disease. *Ascites* is less common. In one case of this kind a diagnosis was made possible by the coexistence of phlegmonous scrofulides on the leg, otherwise there was nothing but ascites.

II. *Onset of the Disease.*—Tubercular peritonitis is usually idiopathic, that is to say, it constitutes the disease in and by itself. This is the only case which I consider on the present occasion. I pass by the chronic peritonitis which is secondary to manifest tubercular disease of the lungs, intestines, or other parts.

1. The onset of protopathic tubercular peritonitis is mostly *gradual*. The belly becomes tender, painful, and large; at the same time the health of the child fails; there are emaciation, loss of appetite, and in many cases slight fever. At the beginning examination of the abdomen discovers nothing but more or less tympanites, sometimes associated with a little ascites. The tympanites usually remains moderate, but in some children it becomes excessive, so much so as to cause permanent dyspnoea. The ascites of the onset is small in quantity, and mostly goes away in a few weeks. Afterwards the indurations which I spoke of begin to appear.

2. The onset is sometimes *sudden*, and attended by very great tympanites. The tympanites is sometimes the only abdominal symptom. Sometimes it is associated with vomiting. And sometimes there are also all the signs of acute gastro-enteritis. In my lecture on tympanites last session I narrated a case of this kind—a child suddenly attacked by infantile cholera; violent vomiting and purging, with collapse, algidity, and tympanites. This was the beginning of chronic tubercular peritonitis.

III. *Course of the Disease.*—Suppose the chronic peritonitis established, you will most likely be able to detect one or other of the pathognomonic signs which I spoke of at the beginning. I will now speak of the symptoms which are attend-

ant upon the confirmed disease. Emaciation from the first; appetite bad; vomiting now and then. Action of the bowels uncertain. Diarrhoea, occasional or even more continual, is no proof by itself of the coexistence of intestinal ulceration. Constipation is common, and it goes on in a few uncommon cases to absolute obstruction of the bowels. This obstruction is either temporary, giving way at length to the remedies employed, or it is permanent, and causes the death of the patient. The latter course is well illustrated by a case published by Dr. Wolston in the 10th vol. of the Clinical Society's Transactions. Obstruction of the bowels, although it may have been relieved, is apt to recur. Pain in the belly is sometimes severe, and is sometimes felt on heavy pressure only. The movements of the bowels are sometimes visible, whether there be much tympanites or not. Fever is present at first, but is seldom high; it often ceases altogether after a week or two; sometimes a low degree of fever is constant throughout the whole course of the disease. So that, at the time you see your patient, it may happen that there are no fever or other symptoms of disease, except the emaciation and the abdominal signs already spoken of.

IV. *Termination of the Disease.*—1. *Recovery* from tubercular peritonitis is common. In the course of months, or a year or two, the tympanites disappears, and the indurations cease to be palpable. The patient is left pale and weak, and may continue so for the rest of life. On the other hand, he may regain his original state of health. The most positive proof of recovery from tubercular peritonitis is afforded by Mr. Spencer Wells's case,¹ in which the ascites of that disease resembled an ovarian cyst. Abdominal section was performed; the peritoneum was seen to swarm with tubercles; the intestines, for the most part, were adherent together. Acute peritonitis followed the operation, but the patient recovered, and six years afterwards she was stout, hearty, and well.

2. *Death* from tubercular peritonitis occurs in several ways. A slow exhaustion is common, especially when other forms of tubercular disease come to complicate the case. Increasing and great ascites may be the cause of death. You remember a girl who died in Mary ward after paracentesis for ascites? In her, tubercular peritonitis was associated with highly-marked cirrhosis of the liver, and this is a combination of lesions which I have seen before. Obstruction of the bowels is an uncommon cause of death.

When suppuration has occurred there is an additional danger. Mere pointing sometimes goes away without any manifest discharge of pus from the navel or any other part. When actual discharge of pus from the navel has occurred recovery is still possible. But when there are signs of a fistulous opening into the bowel the case is hopeless, as I said before.

V. *Therapeutics.*—The first thing to mind, in the treatment of tubercular peritonitis, is to keep the abdomen at rest. This can be done only by keeping the patient in bed. I have known a boy, who was slowly recovering whilst he was in bed, undergo a fatal relapse of his disease by being taken up and dressed against orders.

Another part of the treatment consists in putting a flannel bandage round the belly, so as to reach from the hips to the ribs. Much pain in the abdomen is alleviated by hot and moist fomentations, as hot as the patient can bear; linseed meal poultices, flannel fomentations, or, what is usually best, a flannel bag full of bran or camomile flowers, which can be heated in hot water or an oven as often as needful. You may sprinkle the fomentation with laudanum; or you may smear the abdomen with a liniment composed of equal parts of extract of belladonna and glycerine.

¹ Quoted by Dr. Fagge, Guy's Hospital Reports, third series, vol. xx. p. 203.

I need not say much about the necessity of allowing none but the most easily-digestible kinds of food; in short to feed the patient very much as you would feed a baby. Cod-liver oil, if it can be taken, is sure to do good.

For the ascites you may try copaiba resin cautiously, beginning with three or four grains, made into an emulsion, with an equal quantity of compound tragacanth or almond powder, and some water. If this mixture disagree with the stomach you must discontinue it.

When suppuration has set in, the proper treatment is assiduous poulticing.

Hospital Notes.

Hysterical Spinal Affection of Two Years' Duration; Cured by Corrigan's Iron.

Mr. J. D. T. RECKITT, House-Surgeon at the Newark Hospital, records (*Lancet*, Jan. 15, 1881) the notes of the following interesting case:—

Alice D—, aged twenty-five, dressmaker, and single, was first seen on May 20, 1878, when she stated that until two years before, when she had a fall, spraining her back a little, she had always enjoyed good health. She was first attended at her home. She kept her bed, but had a healthy appearance, though the expression of her countenance was melancholic. She had been treated in the hospital, and had also been under treatment at home for what she stated was spinal disease, the treatment including blisters to the spine, various liniments, and, lastly, crutches; but all to no purpose. The nature of the case was suspected to be hysterical, and in answer to inquiries the patient said she had severe pains almost everywhere, not excepting even the ends of the finger-nails, and added to this, a sympathizing mother dilated very largely upon the extreme suffering the patient underwent. She had not been able to walk for several months, but her appetite had continued pretty good. She slept badly, and had much headache. It was therefore determined to apply the actual cautery, and the patient was assured that she would be able to walk in two months' time.

On May 25th, assisted by Mr. J. Sheppard, Mr. Reckitt made six impressions—three on either side—in the spinal fossæ, from the commencement of the dorsal region downwards. The patient complained of considerable pain, and she nearly fainted. It was decided to reapply the iron in a week's time if there was no improvement.

On June 2d she appeared so depressed and reluctant to have a re-application, that it was deferred a week; and accordingly, a week later, six more impressions were made on either side, but below the former. She was ordered to get up.

On the 16th she felt a little better, but still had a little pain and slight headache. She was ordered to try to walk with help.

On the 23d she said she was improving slowly. She was told that probably another application would be necessary.

On July 7th she was downstairs, and had walked several times with help.

On August 20th she presented herself at the hospital, having walked up a distance of half a mile with her sister's aid. Much better, and walked fairly.

On the 30th so much improved that she was discharged.

Remarks.—The apparent total inability of the girl to walk when first seen, and the rapid effect of the heroic measure adopted, would appear to prove that hysteria—or rather, perhaps, malingering in a hysterical subject—was the main feature in the case; and also that the treatment, though somewhat cruel, was the only means to make such an obstinate individual use her ambulatory powers, and to assure her of her ability to do so.

MONTHLY ABSTRACT.

Anatomy and Physiology.

The Circulation in Marrow of Bone and Cerebral Meninges.

KOLLMAN, in a series of investigations into the circulation in the medulla of human bone, has corroborated the statements of Hayer and Rindfleisch that this circulation is not continuous through vessels, but that the minute veins open into the interstices of the tissue. In spite of this interruption, the circulation goes on with perfect regularity. Aqueous solutions of Berlin blue find their way from the veins to the arteries as readily as from the arteries to the veins, and, what is still more remarkable, they find their way from the sub-arachnoid space of the spinal cord, to the spongy structure of the skull, into the sinuses of the dura mater, and into the veins of the skull and of the face. It is conjectured that the communication between the sub-arachnoid spaces and the veins is by means of the Pacchionian granulations. The sub-arachnoid and subdural spaces of the brain are not in direct communication, but the injection readily passes from the subdural space into the periphery of the Pacchionian granulations and so into the venous sinuses. There are also fissures in the inner surface of the dura mater which are openings into the lymphatic canals.—*Lancet*, Jan. 29, 1881.

Some Points in the Anatomy of the Ear.

In a paper which has just appeared in the *Archiv für Anatomie*, by Professor RETZIUS, he states that as the great work of the anatomy of the ear on which he is engaged will take a long time to complete, on account of the trouble and expense of the engravings which are to accompany it, he desires to publish provisionally some of the new facts which he has discovered. In the first place, he some years ago found in the auditory labyrinth of teleostean fishes two small plates on the floor of the utriculus, near the canalis communicans, on which two branches of the cochlear nerve terminate. He considered this structure to be the first indication of the "pars basilaris cochleæ." Hasse acknowledged its existence in fishes, and thought it to be the rudiment or "pars initialis cochleæ." Further researches satisfied Retzius that it was present in the plagiostome fishes, and still more recent researches have enabled him to trace it through the amphibia, through many reptilia, in which it is less developed than in the amphibia, and through the birds, where it is smaller and more rudimentary than in the reptilia, appearing only as a small spot with a few nerve fibres distributed to it, situated on the floor of the ampulla frontalis. No trace of it can be found in the rabbit, cat, or dog, amongst mammals. He has, therefore, changed his opinion, and no longer regards it as the rudiment of the cochlea, but has named it the "macula acoustica neglecta," and the branch of nerve supplying it the "ramulus neglectus." How, then, he asks, does it stand with the true pars basilaris cochleæ—the most important part of the organ of hearing? Since this nerve termination does not represent it, it may be settled that there is no pars basilaris; they only possess the lagena cochleæ. The first traces of the true pars basilaris occur in amphibia.

A second point to which Retzius has directed his attention is the mode of division of the acoustic nerve. He quotes the descriptions given by Henle, Hyrtl, Luschka, Krause, Quain, and Turner. In the works of all these authors the audi-

tory nerve is stated to divide into two chief branches—a ramus vestibularis and a ramus cochlearis. Some authors admit that the vestibular nerve divides into four branches, which supply the sacculus hemisphericus and the cochlea. Others consider that the cochlear nerve only supplies the cochlea, and that the vestibular nerve gives off five branches. Neither of these statements is correct. The anterior of the two main divisions of the auditory nerve—that is to say, the vestibular nerve—which, by the twisting of the parts really lies posteriorly to the other, divides into three branches, which supply respectively the recessus utriculi, the ampulla sagittalis, and the ampulla horizontalis. The posterior main branch—i. e., the cochlear nerve—divides into three branches, which supply the ampulla frontalis, the sacculus, and the cochlea.—*Lancet*, Jan. 1, 1881.

The Mucous Membrane of the Anus.

In the *Journ. de l'Anat. et Phys.*, G. HERMANN has recently published some observations on the structure of the anal mucous membrane. He includes in this term a circular rim from 5 to 12 mm. in depth, reaching from the narrow white ano-cutaneous line pointed out by Hilton, to the ano-rectal line above—a portion corresponding to the internal sphincter and analogous to the red free border of the lips between the skin and true mucous membrane. After pointing out that with the exception of a serous coat on the outside, the structures of this region are the same as those met with in the upper part of the intestine—two layers of muscular tissue, mucous membrane, Auerbach's and Meissner's plexuses,—he enters into fuller detail as to the structure and development of the mucous membrane. The epithelium is squamous and stratified, but columnar in the depressions between the columnæ recti of Morgagni. At the sides he finds pouches and duct-like tubes lined with simple or stratified epithelium, which dip down to the depth of one centimetre into the subjacent muscle and there sometimes branch at their extremities. He considers these to be analogous to the glands found in this situation in animals. It is also suggested that these depressions, duct-like tubes, and the closed follicles found between them play an important part in the production of anal abscess and fistula.—*Lancet*, Jan. 29, 1881.

Rigor Mortis.

M. RICHET, in a lecture delivered as one of a course auxiliary to that of the Faculty of Medicine of Paris, has just given a very full and complete *résumé* of the present state of our knowledge of rigor mortis, which has engaged the attention of observers from the time of LOUIS, who in 1752 wrote an essay upon it, in which he pointed out that it was one of the principal signs of death. NYSTEN, in the early part of the present century, demonstrated that cadaveric rigidity is due to the condition of the muscles, since if the ligaments of the joints, the fasciæ, and the aponeuroses, are all divided, rigor mortis persists, whilst it is removed or prevented by division of the muscles or by the separation of them from their attachments. BROWN-SÉQUARD and KÜHNE next examined the phenomena in question minutely, the former showing that it could be removed by the injection of blood into the vessels, and the latter demonstrating that it was essentially a chemical action. It may be stated generally that rigor mortis is never absent; the few cases in which reliable authorities have believed that it has not occurred having probably been instances where it has occurred extraordinarily early or late. It occurs in all animals, both vertebrated and invertebrated. In fishes it takes place almost instantly after death, whilst in frogs, if due precautions be taken, it does not occur until after the lapse of eight or ten days. It has no relation, therefore, to the temperature of the blood of the ani-

mal. The first muscles to undergo rigor mortis appear to be those raising the lower jaw, as the masseter, temporal, and pterygoid, which are very irritable muscles. M. NIDERKORN finds that in 113 subjects rigor mortis was complete at the fourth hour in 31, at the sixth hour in 20, at the fifth in 14, at the third in 14, at the seventh in 11, at the eighth in 7, at the tenth in 7, at the ninth in 4, at the thirteenth in 2, at the second in 2, and at the eleventh in 1. It commences about two hours after death, and in the human subject is usually complete about the fourth hour. It may supervene whilst the animal is still warm, as is seen in those which have been hunted to death. On the other hand, its appearance is retarded by cold, whilst its duration is almost indefinitely retarded by it. A muscle which has become rigid after death becomes still more rigid if exposed to a temperature of 120° F. This increase, according to KÜHNÉ, is due to the coagulation of the serine and caseine contained in the muscular juice. Mere congelation of a muscle does not cause it to lose its irritability, but it very rapidly becomes rigid when thawed.

The remarkable positions sometimes assumed by men killed on the field of battle have been described by many observers, and demonstrate that rigidity may supervene at the moment of death. BROWN-SQUARD has, indeed, recorded a case of adynamic typhoid fever, in which the jaws and limbs became fixed, whilst the heart still continued to beat; and quite lately the same thing has been recorded by M. BOCHEFONTAINE in dogs poisoned with salicylate of soda, and M. RICHET has observed it in animals poisoned with medium doses of strychnia. In these cases all the muscles were rigid and unexcitable, with the exception of the heart; and artificial respiration could only be maintained with difficulty owing to the rigidity of the chest. Division of the nerves supplying a muscle appears to have little or no effect in accelerating the occurrence of rigor mortis, and according to HERMANN, neither exposure to oxygen nor to the vacuum of an air-pump exerts any influence.

In becoming rigid, muscles slightly diminish in volume; they shorten less, at least with moderately heavy weights, than muscles in contraction; they entirely lose their irritability, and their elasticity is greatly impaired. Heat is eliminated whilst rigor is being established.

In regard to the cause of rigor mortis, which is an extremely interesting point, M. RICHET is of opinion that, as KÜHNÉ originally maintained, it is a chemical process; but this process is a phenomenon not of life but of death. The myosine of the muscle coagulates. The acids, which are constantly being formed and as continuously removed during life, accumulate after death in the muscle, and gradually effect the solution of the myosine, and then the azotized matters undergo decomposition and develop ammonia, which, in its turn, dissolves the myosine, and thus occasions the disappearance of the rigor. Speaking generally, rigor mortis is a chemical phenomenon, characterized by the coagulation of the myosine, and may be considered as the commencement of the death of the elements of the muscle.—*Lancet*, Jan. 22, 1881.

Materia Medica and Therapeutics.

Maize and Maizenic Acid.

The following are the conclusions drawn by Dr. VAUTHIER, in a brochure entitled, *Etude sur le Maïs (Zea Maïs) et l'Acide Maizenique (Archives Méd. Belges, August, 1880)*: 1. The action of *Zea maize* is always favourable in all

affections of the bladder, whether recent or chronic. 2. Maizenic acid is the active principle of the stigmata of maize, and it alone contains the therapeutic properties. 3. The diuretic action is not constant; it is met with in cases of acute traumatic cystitis, and in cases of retention, but here the improvement in micturition is due to the recovery of the affected organs, and not directly to the action of the maizenic acid. 4. The best results are observed in uric and phosphatic gravel, in acute cystitis, whether simple or due to gravel, and in mucous or muco-purulent catarrh. 5. In the cases observed by the writer, the ordinary remedies for these affections had already been employed without benefit, while the maize never failed to effect a cure. In connection with the maize, simple and medicated vesical injections were employed. 6. Maizenic acid, moreover, has the power of dissolving calculi by its chemical action; and not only vesical calculi, but also all the other calcareous concretions that are met with in the human system. Hence its use seems indicated in cases of gout and rheumatism, as well as in affections of the urinary organs. The preparations used by the author were the infusion (10 parts of corn-silk to 100 of boiling water, with syrup *ad libitum*; dose, a tablespoonful every two hours), the extract in doses of one and one-half to three grains, and maizenic acid in doses of one-eighth of a grain in pill or mixture.—*London Med. Record*, Jan. 15, 1881.

Anæsthesia by the Application of Chloroform to the Skin.

We lately described the interesting experiments of Dr. BROWN-SÉQUARD on the effect of the application of chloroform to the skin on the functions of the central nervous system. It has been objected that the effects might possibly be due to the inhalation of some of the chloroform vapour. He has therefore repeated his experiments, and with the precaution of making the animal breathe air from another floor of the laboratory than that in which the experiments were made, its head being placed within a tube. The results obtained were the same as those already described, the only difference being that the period of excitement which usually precedes that of complete resolution, was a little longer than in the experiments already published. During this period, which is frequent, although not constant, the respiratory and cardiac movements are more rapid and more energetic. The animal cries and is disturbed—it appears hyperæsthetic, and its rectal temperature is raised a fifth or a quarter of a degree Centigrade.

Dr. Brown-Séquard, in a fresh series of experiments, has ascertained that the influence of chloroform on the mucous membranes is, as a rule, much more rapid and energetic than when applied to the skin. In these observations also the animals (dogs, cats, rabbits, and guinea-pigs) were made to breathe, by means of a tube fixed in the trachea, air coming from a distant part of the laboratory. Inhibition of the heart and respiration was invariably produced in a very brief, though variable time. Moreover, the loss of sensibility, of reflex action, and general resolution, with arrest of the exchange between the tissues and the blood, were frequently observed almost immediately after the application of the chloroform to the mucous membranes of the nose and larynx, or when it was poured into the mouth of guinea-pig or rabbit. But, strange to say, the application of chloroform to the posterior part of the mucous membrane of the mouth of the dog, or to the surface of the pharynx, always produced the opposite effect to the inhibition observed in the other animals. Respiration is greatly augmented, one dog, for instance, breathing 160 times a minute. Thus the effect in the same animal is altogether different when the chloroform is applied to the laryngeal mucous membrane, than when it is applied to the adjacent mucous membrane in the pharynx and mouth.

The influence of chloroform poured into one nostril upon the diaphragm and phrenic nerves is exactly the same as that produced when it is applied to the side of the thorax or to the shoulder. There is a loss of the equilibrium between the action of the two halves of the diaphragmatic apparatus; the phrenic nerve and the half of the diaphragm on the side corresponding to the nostril irritated become more energetic both in the degree and in the duration of their action, after the thorax has been opened, while those on the other side present the opposite condition.

Chloral hydrate, even in the most concentrated solution, when applied to the skin, does not usually produce any of the anæsthetic or other effects which follow its injection into a vein or beneath the skin. This is, however, not true when a large area of the skin is irritated by anhydrous chloral. The effects of this are perfectly analogous to those of the application of chloroform. The only differences are that the chloral acts more slowly, but causes death more readily; that it causes pulmonary, renal, and intestinal hemorrhages more frequently than chloroform, and that it produces abundant secretions from various abdominal glands, and so causes diarrhœa, an effect which is never produced by chloroform. Chloral seems to cause glycosuria, which chloroform never does, and is apparently absorbed by the vessels of the skin to a much greater extent than chloroform. Inhalations of anhydrous chloral or its application to the skin, do not produce anæsthesia except at the moment of death. In the guinea-pig especially, which is rendered anæsthetic so readily by the inhalation of a very small quantity of the vapour of chloroform, the inhalation of chloral has very little anæsthetic effect.—*Lancet*, Jan. 29, 1881.

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Gelsemium as a New Antipruritic Remedy.

Dr. L. DUNCAN BUCKLEY recommends (*New York Medical Journal*, Jan. 1881), gelsemium as an adjuvant for the relief of itching in certain cases, especially eczema in adults. He gives it in increasing doses, repeated every half hour or every hour, until the pruritus is relieved. He begins with ten drop doses of the tincture and has often found some measure of relief after the first or second dose.

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On the Action and Uses of Certain Remedies employed in Bronchitis and Phthisis.

Dr. T. LAUDER BRUNTON makes the following interesting communication to the *Lancet* (Jan. 1, 1881), on this subject:—

In both bronchitis and phthisis the first symptoms that attract notice are cough and expectoration, and the first remedies that claim our attention are the so-called sedatives and expectorants. Cough consists in deep inspiration, closure of the glottis, and violent expiratory effort, by which the glottis is forcibly opened by the compressed air, which carries with it, in its exit, mucus or other matters which may have lodged in the lungs or respiratory passages. The nervous centre for this act lies in the medulla oblongata. It is bilateral, and situated on each side of the central raphé. It is excited into action reflexly by irritation of the respiratory branches of the vagus distributed to the glosso-epiglottidean folds, to the whole interior of the larynx, to the trachea, especially at its bifurcation, and to the bronchi, and the substance of the lung itself, as well as the pleura when it is inflamed. Irritation of the internal auditory meatus at the point to which the auricular branch of the vagus is distributed also causes coughing, and so also may irritation of the liver and of the spleen. As coughing is a reflex act, excited by irritation applied to a sensory nerve, and reacting through a nerve centre upon

the respiratory muscles, it is obvious that it may be lessened, either by removing the source of irritation or by diminishing the excitability of the nervous mechanism through which it acts. Both methods are employed in medicine. One of the commonest is that of lessening irritation by the use of glutinous and saccharine substances. These have in themselves little or no action upon the nervous mechanism. They do not pass down to the bronchi, or lung substance, so that they can have no direct effect upon the mucous membrane there, nor have they, so far as we know, any effect upon it after they have been absorbed into the blood; and yet one of the commonest observations is that glutinous and saccharine substances have a very great power to allay cough when applied to the back of the throat, even in cases where we know that inflammation and consequent irritation exist in the respiratory passages below the glottis, at a point which the mucilaginous substances cannot reach. The probable explanation of this action of such substances as marshmallow lozenges, jujubes, consisting of gum and sugar and Spanish liquorice, is that the irritation which occasions the cough exists at the root of the tongue and around the fauces, as well as in the trachea, bronchi, or lungs, the combined irritation rendering the cough worse than either the one or the other alone would do; and, therefore, if we soothe the tongue and fauces we relieve the cough, even though the irritation in the bronchial tubes or lung may remain as before. The power of such substances as those mentioned to relieve cough depends, no doubt, to a great extent either on their covering the inflamed and irritable surface directly with a mucilaginous coat, and thus protecting it from the action of the air or from irritation by other substances passing over it, or by exciting an increased flow of saliva or mucus, which has a similar effect. At the same time we cannot deny the possibility of their having other actions, though with these we are at present unacquainted. The use of the mucilaginous substances containing opium or other sedatives, which we know under the name of "linctus," is a more complicated one. In them we have the soothing action of the mucilaginous compound, combined with the local sedative action of morphia, chloroform, or hydrocyanic acid upon the inflamed or irritable mucous surfaces at the root of the tongue and back of the throat, and this renders even their local action more powerful than that of a mucilaginous substance alone. Such drugs as opium, hydrocyanic acid, and chloroform have a certain amount of local action upon the peripheral ends of sensory nerves, and lessen their sensibility to impressions. When they are applied to the ends of the nerves only for a very short time, as they are when we swallow these drugs in a liquid form, their local action is comparatively slight. It is much greater when they are taken in a mucilaginous vehicle, which, adhering to the irritated mucous membrane over which it passes, keeps the sedatives in contact with it for a longer time, and thus allows them to exert a more powerful action. But the sedatives which we give to relieve cough are not unfrequently administered in the form of solution, and then, though their local action must be comparatively slight, they still lessen a troublesome cough. Their action here is a different one from that which we have just discussed, but it is possessed by the sedative whether given in the form of linctus or of solution. In either way it is swallowed by the patient, absorbed from the stomach and intestines into the circulation, and carried by the blood to the medulla oblongata, and also to the inflamed mucous membranes, in which the blood circulates freely, just as well as in other parts of the body, although here its action is likely to be very much less than if it were applied for a length of time directly, as in the shape of the linctus; but, as we have mentioned, the linctus can only be applied to the back of the tongue and throat, and the source of irritation of the afferent nerves may be in the bronchi or in the lung itself. Here, no doubt, a linctus cannot penetrate, but we may to a certain extent act

locally upon the nerves by the use of spray and inhalation. Some of these, such as the vapour of conium and the vapour of hydrocyanic acid, are intended to lessen the irritability of the sensory nerves in the respiratory passages, and thus lessen cough. Others, such as the spray of ipecacuanha, and inhalation of essential oils and terebinthinous substances, have probably a different action, and do not lessen the irritability of the sensory nerves in the respiratory passages, but alter the nutrition of the mucous membrane in such a way as to diminish the irritation which the abnormal condition of the membrane exerts upon the nerves. When the irritation is situated in the larynx, as in cases of laryngeal phthisis, one of the best means of relieving it is by applying the sedatives locally, whether by means of a brush, or, what is perhaps still better, by blowing it, in the form of a powder, directly upon the irritated surface. *A useful application in laryngeal phthisis consists of a mixture of morphia and starch, in the proportion of about one-sixth of a grain of morphia to two grains of starch. This mixture is introduced into a glass tube, of a proper shape, and is blown down the throat at the instant that the patient takes a deep inspiration. The powder is thus distributed over the interior of the larynx, and exerts its local sedative influence upon the irritated surface, as well as a general sedative effect upon the central nervous system after its absorption.

This brings us to the second mode in which sedatives relieve cough. After their absorption into the blood, in whatever manner they may have been applied, they are carried to the medulla, and there lessen the excitability of the nerve centre through which the reflex act of coughing is produced. In large doses their sedative effect may be so great as to endanger life, and the caution is given in every text-book, and by every teacher, that respiratory sedatives such as opium should be carefully administered to persons suffering from bronchitis with profuse expectoration, lest the irritability of the medulla should be so far diminished that it will no longer respond even to a powerful stimulus from the lungs, and the secretion may consequently go on accumulating until when the patient awakes the respiratory passages are so clogged with mucus that no effort which he can make is sufficient to clear them, and he dies of suffocation. By administering them in smaller quantities, however, the effect of respiratory sedatives may be graduated so as to diminish cough without any risk of causing death, and their effect would be exceedingly beneficial if they acted only upon the respiratory centre. Unluckily, however, this is not the case, and the most powerful of all—viz., opium—not only influences the respiration, but the digestion. It diminishes the cough, but sometimes, also, it diminishes the appetite, and may interfere with the proper action of the bowels. When this is the case, we are obliged carefully to steer between two dangers: (1) the injurious effects of the cough itself, and (2) the injurious effect of disturbed digestion. If we leave the cough alone, it exhausts the patient, for the muscular exertion involved in a violent fit of coughing is very considerable indeed, and the muscular effort exerted by a patient with a bad cough during the twenty-four hours is really more than equivalent to that of many a man in a day's work. Nor is this all. Any one who watches the face of a patient during a violent fit of coughing will see the skin become flushed, and then dusky; the veins in the forehead and in the jugulars swell up, and become so tense that they seem as if about to burst; so that there is both venous engorgement and interference with the respiration. But what we see in the face takes place elsewhere. The same tension which we see in the jugulars is also present in the right side of the heart, in the vena cava, and in the portal system; for the portal vein has no valves, and the increased tension is transmitted backwards to the veins of the stomach, spleen, and intestines. By and by this all begins to tell upon the heart and upon the digestive system, as well as, to some extent,

upon the kidneys. The stomach becomes congested, and we have loss of appetite, nausea, and vomiting. The patient, too, is kept awake, and we have nervous exhaustion, or loss of sleep, added to the weariness caused by the muscular exertion, and to the depression occasioned by digestive disturbance. These are what we have to fear: on the one hand, continuous coughing; on the other, we must avoid the digestive disturbance produced by our sedatives; and the duty of the physician is, so far as possible, to relieve the cough without disturbing the digestion. Numerous combinations have been devised, and are found to be, empirically, of very great service. If we take one of them and attempt to analyze it, we shall find that its components are such as to diminish the excitability of the respiratory centre, and at the same time to lessen the injurious effect of the sedatives upon the stomach. Such a one is the following mixture: Solution of hydrochloride of morphia and dilute hydrocyanic acid, of each eighteen minims; spirit of chloroform and dilute nitric acid, of each one fluidrachm; glycerine, three fluidrachms; infusion of cascarrilla or infusion of quassia, two fluidounces; a sixth part to be taken three or four times a day.

In this mixture, which in its essence was much used by the late Dr. Warburton Begbie, of Edinburgh, to relieve the cough in phthisis, we find the sedatives morphia, hydrocyanic acid, and chloroform, to lessen the excitability of the respiratory centre; we find glycerine, which will tend to retain the sedatives for a longer time in contact with the back of the throat, and will also act to some extent as a nutrient. We have combined with these nitric acid and infusion of cascarrilla or of quassia, which have so-called tonic (?) action upon the stomach. In what this effect precisely consists we cannot at present say, but we may imagine that it will in some way partially counteract the effects of the congestion which the cough produces, and at the same time we know that they have the power of exciting appetite, and they will thus in a great measure counterbalance the injurious effects of the morphia upon digestion. Nor is this all. The nitric acid, as I shall shortly have to mention, has a very definite effect indeed upon the secretion in the lungs themselves; and this brings us to the consideration of another part of our subject—viz., the effect of drugs upon the secretion and nutrition of the lungs, by which they tend to restore the healthy condition of the bronchial and pulmonary tissues, and thus diminish coughing.

First of all, then, we must consider those drugs which lessen congestion. If a person, hastily eating or drinking, get a crumb of bread or a drop of fluid down the larynx, or into the wrong throat, as it is termed, he suddenly begins to cough violently, and the cough continues until the source of irritation has been removed. If the irritation has been violent he may give a few coughs after the crumb has been coughed up, although the primary source of irritation—namely, the crumb—has disappeared; but the congestion which it occasions still remains for a short time, and acts as an irritant. If a person suffering from disease of the mitral valve makes any sudden exertion, he is very likely to bring on a cough, which, however, quickly subsides after a short rest. The cough here is not due to inflammation of the mucous membrane, but simply to congestion, and when the congestion disappears the irritation goes with it. In cases where we have inflammation of the respiratory vessels actually present, as in persons suffering from bronchitis, the congested condition of the membrane is a source of considerable irritation, and we frequently notice that such persons, on going out into the cold air, may cease to cough, but again begin to cough violently when they return from the cold air into the warm room. The reason of this is that the cold air has acted upon the congested vessels of the respiratory passages in a somewhat similar way to what it does upon the vessels of the face; it causes them to contract, and the congestion being thus diminished the cough is lessened. When the patient

goes into the warm room the face, which may have been pale while he was exposed to cold, flushes up with the heat, the vessels of the respiratory passages also become engorged, and the increased congestion causes irritation, bringing on the cough. In other cases, again, we notice that, just as the face becomes pale when exposed to cold, it shortly afterwards becomes flushed, although the application to cold continues. A person suffering from bronchitis, on going into a cold room, will begin to cough violently, the cold here increasing instead of diminishing congestion.

The pulmonary capillaries have great contractile power. Ten years ago I made some experiments, which I have not yet published, on the subject. I found that on the application of cold to the lung of a frog, when placed under the microscope, the capillaries would contract to two-thirds of their former diameter. We have, however, very few observations on the action of drugs upon the pulmonary circulation, the difficulties in the operative procedure being very considerable. I have observed that muscarin appears to have a power of contracting the pulmonary vessels, and that this effect is abolished by atropia. I am unaware, at present, of any other observations on the action of drugs upon the pulmonary circulation. Circumstances have prevented me from studying the recent researches on this subject in the way I should have wished, while drawing up this paper. From its power of contracting the vessels in other parts of the body, we should expect that digitalis would have a similar action upon the lungs; and we find, in looking over Beasley's "Book of Prescriptions," that digitalis has been used in pulmonary affections—as for example, in the following draught, employed by Sir A. Crichton in acute phthisis: lemon-juice, half an ounce; carbonate of potash, to saturation; decoction of sarsaparilla, ten drachms; tincture of digitalis, ten to thirty minims; acacia mucilage, ten drachms; to be taken every sixth hour. In such a prescription as this we have the tincture of digitalis, which will, in all probability, by contracting the vessels, diminish the pulmonary congestion and lessen cough. It is combined with carbonate of potash, and the effect of potash upon the lungs is very marked indeed. For my knowledge of its action I am indebted to Dr. Andrew Clark. Its action is perhaps best noticed in a patient suffering from consolidation and softening of a limited portion of one lung. When such a patient is in ordinary health, one may observe, on a stethoscopic examination, crepitant râles, limited to one spot. When he catches cold, one may hear, in addition to those, dry râles extending for some distance around the irritated spot, and the cough at the same time becomes more frequent and troublesome, while there is very little, if any, expectoration. If potash be now given alone, or, still better, in combination with a vegetable acid, the dry râles subside, and are replaced by moist ones, which in the course of a day or two, as the potash is continued, alter in character, giving one the impression of their being caused by less viscid fluid. At the same time the expectoration becomes more copious, and the cough less frequent and less troublesome. Now is the time to alter the treatment, and for the potash to substitute nitric acid. If this be given too soon the cough, which had begun to get easier, will again become drier and harder, but if it be administered at the proper moment the cough becomes still less troublesome, the expectoration diminishes, and the moist râles disappear from the neighbourhood of the consolidated part of the lung, although they may still remain, as before, in that part itself. Potash, then, has a very marked effect in rendering the pulmonary secretion more fluid and abundant, while nitric acid has an opposite effect. As in many cases we wish to diminish the secretion rather than increase it, it is nitric acid rather than alkalis which we employ for long periods in the treatment of phthisis, as we have already seen in the modified formula of Dr. Begbie's phthisis mixture.

One of the most powerful expectorants is simply a little warm food in the stomach, and in cases of chronic bronchitis, in which the patients complain of violent coughing immediately after rising, one of the best expectorants is a glass of warm milk, either with or without a little rum, and a biscuit or a piece of bread about a quarter of an hour before they get up. A little warm beef-tea will have a similar effect. After taking this for a short time they generally tell you that the sputum comes away much more easily than before, and they are not so much exhausted by it. But perhaps the remedy, *par excellence*, not only in cases of phthisis, but in chronic bronchitis, is cod-liver oil. Persons suffering from long-standing chronic bronchitis will often come to the hospital to beg for cod-liver oil, saying that it eases their cough far more than any cough mixture. Other oils or fats have not this power to the same extent as cod-liver oil. We cannot say positively what the reason of this may be, but I think there is no doubt about the fact. My own belief is that cod-liver oil is more easily assimilated than other oils, and not only so, but more easily transformed into tissues themselves. Whether it owes this property to its admixture with biliary substances, or to its chemical composition, we cannot say. In his book on "Fat and Blood, and how to make them," Dr. Weir Mitchell quotes a remark made by an old nurse, that "some fats are fast, and some fats are fleeting, but cod-liver oil fat is soon wasted." By this she meant that there were differences in the kinds of fat accumulated under the subcutaneous tissues of men, just as there are differences in subcutaneous fats which accumulate in horses. The horse fed on grass soon gets thin by hard work, while fat laid on when the horse is feeding on hay and corn is much more permanent. Persons fattened on cod-liver oil soon lose the fatness again, and this, I think, points to the power of ready transformation which the oil possesses. Supposing that it does possess this power, we can readily see how very advantageous it will be. In chronic bronchitis, and in catarrh and pneumonia, we have a rapid cell-growth, but want of development. The cells lining the respiratory cavities are produced in great numbers, but they do not grow as they ought to do. They remain, more or less, lymphoid cells, instead of developing into proper epithelium. They so rapidly form, and are thrown off so quickly, that they have not time to get proper nutriment, and if they are to grow properly we must supply them, not with an ordinary kind of nutriment, but with one which is much more rapidly absorbed, and is capable of much more rapid transformation in the cell itself than the usual one. This power is, I believe, possessed by cod-liver oil, and to its quality of nourishing the rapidly-formed cells in the lungs in cases of bronchitis and catarrhal pneumonia I believe its great curative power is owing.

The next subject we will consider is the action of some drugs in the vomiting associated with cough. The action of vomiting, like that of coughing, is reflex; the nervous centre for it is also in the medulla oblongata, closely associated with the respiratory centre, and it is excited by various afferent nerves, the chief of them being the branches of the vagus distributed to the stomach. When congestion of the stomach is present, these become irritated, and we get loss of appetite, nausea, and vomiting. Like coughing, vomiting may be prevented by the removal of the irritant. For example, where the irritant is indigestible food, the vomiting ceases after the ejection of the offending substances. When the irritation depends on inflammation of the walls of the stomach, it may be soothed by sedatives having a local action upon the nerves, such as ice and hydrocyanic acid, or by drugs having the power of lessening the irritability of the nerve centre of the medulla, such as opium. In the chronic vomiting of phthisis, all these drugs may be employed, but there is one other which has been useful in this affection, and which probably has no effect either upon the nerve centre or the nerve ends

This is alum. Its mode of action probably is that by its astringent power it contracts the vessels of the stomach, and thus lessens the congestion and consequent irritation produced by the continued coughing in the manner already described.

Eruption Produced by Chloral.

Dr. Gee, Physician to St. Bartholomew's Hospital, has recently had under his care in the wards a girl, seventeen years of age, with chorea, for which chloral hydrate in frequently-repeated doses was prescribed. During the third week of its administration, a papular eruption of a dusky hue, surrounded by much cutaneous redness, was produced on the forehead, face, chest, and extremities, in arrangement partly crescentic and partly confluent. The eruption consisted essentially of a combination of lichen and erythema papulatum, and was attended with some increase of temperature.—*Lancet*, Jan. 1, 1881.

Medicine.

The Treatment of Diphtheria.

This is a subject of almost exhaustless interest, and therefore any well-observed facts in connection with it deserve notice. Some recent numbers of our contemporary, the *Berliner Klinische Wochenschrift*, contain papers which treat of it; and as the remedies proposed are simple and readily obtainable, and more especially as they appear to have been very efficacious, we shall briefly analyze the papers for the benefit of our readers.

Dr. G. GUTTMANN, of Cannstatt, proposes the use of pilocarpin. He reports in No. 40 of the *Berliner Klinische Wochenschrift* that he has used it during the past fifteen months, and, as the result of his present experience, is inclined to regard it almost as a specific. He feels unable to decide whether the local or the general manifestations of diphtheria are the primary. He inclines, however, to the belief that the local symptoms precede and give rise to the subsequent general condition, for, as a rule, and with few exceptions, the general disease is in proportion to the severity of the local lesion, pharyngeal or otherwise, and, moreover, recovery sets in as soon as the local signs of the disease begin to abate. And professional attention has long and largely been devoted to the means by which false membranes and other local conditions may be got rid of; hence the use of paintings, caustics, gargles, and inhalations. Unfortunately their application is not always easy, and often increases the local irritation. The knowledge of the physiological action of pilocarpin has led Dr. Guttman to try it in diphtheria. As is well known, it increases bronchial secretion, and it was thought that in this manner the diphtheritic membrane would be loosened and got rid of. The result seems to have been extremely satisfactory. In April, 1879, Dr. Guttman was called to attend a family of nine persons ill with diphtheria, of whom three were in a serious condition. Pilocarpin was ordered in medium doses, so that about one grain was taken during the day (gramme 0.05). Within a few hours a copious salivation was going on, and "the diphtheritic membranes swam away in the flowing saliva." Quinine was ordered internally, as well as a gargle of lime-water and pepsine. All these nine cases recovered within two to four days.

During the following fifteen months he treated sixty-six cases of diphtheria on the same plan. Of these fifteen were very severe cases (under other methods of treatment he considers that at least two-thirds of the patients would have died),

eighteen were slight, and the remaining thirty-three of medium severity. *They all recovered*; the most severe cases only lasting eleven days, while the majority were cured within two or three days. The earlier cases of this series had other treatment at the same time—quinine, etc.—but the later cases were treated solely with the pilocarpin. In speaking of the cases as diphtheria, Dr. Guttman took especial care to exclude other forms of disease; in most of the cases there was a clear history of infection, and as diphtheria was constantly occurring, he would be quite familiar with it; thus we may take it for granted that there is no error as far as diagnosis is concerned. Many professional colleagues in his own neighbourhood tried the remedy and found it efficient. The drug was administered internally; within a short time it produced an active flow of saliva, by means of which the false membrane was loosened, the inflammatory infiltration also lessened, and the intense redness gave place to a more normal colour. His formula for children is as follows: *R.* Pilocarpini muriatici 0.02–0.04, pepsini 0.6–0.8, acid. hydrochlorici gtt. ij, aquæ destill. 80.0; a teaspoonful every hour. For adults the dose is about double. If the physiological action of the drug does not manifest itself within a short time, increase the dose.

Dr. Bosse, of Domnan, relates in No. 43 of the same journal how the accidental administration of a spoonful of turpentine to a child in the last stage of diphtheria apparently saved its life, all other remedies having previously failed. This led him to make further trials with the drug; and he reports that he found it very serviceable. His first case was a boy, ten years of age. Carbolic acid had been placed in a saucer in the room for the purpose of disinfecting the air; but the odour was intensely objectionable to the boy's parents, and so turpentine was substituted. In the hurry and excitement attendant on the illness, a tablespoonful of the turpentine was given to the boy instead of his proper medicine. Both were contained in very similar phials. The turpentine does not appear to have caused any very great discomfort, and as the mistake was quickly perceived a quantity of milk was given in order to palliate it. After a while the boy became quieter and fell asleep, his breathing having previously been extremely laboured. On the following morning he appeared very much better, and he finally recovered; there had been no ill effects from the dose, either on the intestinal canal or on the urinary system. The circumstance produced a vivid impression on Dr. Bosse, who at first rather feared that the effect might be *post* rather than *propter hoc*. However, being placed in a district where diphtheria was endemic, he decided to put the treatment to the test, and in the course of a short time he tried it in twenty-three cases, all children from two to twelve years of age. The younger children took two drachms, the elder ones three drachms, of rectified turpentine. It was given pure, and forced down if necessary. The children were allowed as much milk afterwards as they cared to drink. In only one case was there vomiting; in all the others the oil was well borne. Dr. Bosse's usual treatment (chlorate of potash in lime-water with syrup of Peruvian balsam, and locally painting with Peruvian balsam) was continued after the turpentine. Within twenty-four hours, on examination, the false membranes were found broken and loose and raised. In four cases a second dose of turpentine was given. The whole of the twenty-three cases were well within forty-eight hours of the appearance of the diphtheritic patches. Of sixty-three other patients so treated, four died; but as they were all at a distance, Dr. Bosse was not only unable to control the treatment, but also to report very accurately on the cases. He says, "If sceptics might wish to argue that the above twenty-three cases were all of a mild variety, there was proof at least that the remedy considerably shortened the duration of the disease."

In the same number of the journal, Dr. ANNUSCHAT, of Liegnitz, after re-

porting on the uselessness, in his hands, of the ordinary remedies (chlorate of potash, salicylic acid, benzoate of soda, inhalations of lime-water, and of lactic acid) in several cases of severe and very typical diphtheria, among children for the most part, refers to a case in which the first local appearance was in the vagina; it was accompanied by severe constitutional symptoms. The following is the case: The pharynx was normal; proceeding from the right side of the vagina, and involving the thigh, there was a diphtheritic ulcer eight centimetres broad; the surrounding parts were oedematous, while the edges of the sore were raised and rigid, the sore itself being correspondingly depressed; it had a white, glossy appearance. Solid nitrate of silver was applied, but the sore continued to extend very widely. Under these circumstances it was felt necessary to try other measures: cyanide of mercury was decided upon—two grains of the mercury in three ounces and a half of peppermint water, of which one teaspoonful was given every hour throughout the day and night; water dressing was applied locally to the vagina. Within twenty-four hours a remarkable change took place, and on the third day the sore was granulating healthily. The mercury, which had been taken regularly, was then discontinued. Two other successful cases of vaginal diphtheria are likewise reported. Shortly after the occurrence of these cases, an outbreak of pharyngeal diphtheria took place, affecting some 120 children under fifteen years of age. They were all treated with cyanide of mercury internally, and a spray of benzoate of soda solution locally. Stimulants also were freely prescribed. Of the 120 patients, 106 recovered, and 14 died.

The preceding records are certainly not a little remarkable; but diphtheria, in a typical as well as severe form, is known to occur in certain districts of Prussia, and thus the practitioners of those districts must be well acquainted with its clinical features, and are not likely to be misleading in their statements. We have transcribed them as we have found them, and must leave it to those whom it concerns to verify them or otherwise. This much we are all aware of—that diphtheria is a very serious disease, and that our most approved remedies (so called) not infrequently fail to produce any effect upon it. In such cases it would, no doubt, be hard to try new remedies, and failing, to condemn them as useless; but if, tried as an *ultimum refugium*, they should prove of service, it would greatly enhance their claims to further and more extended trials in less desperate cases.—*Med. Times and Gazette*, Jan. 22, 1881.

The Temperature in Tubercular Meningitis.

Dr. JULES TURIN, in an interesting article on Tubercular Meningitis, in the *Jahrbuch für Kinderheilkunde*, vol. xvi., sums up the question of temperature as follows: 1. Tubercular meningitis is always accompanied by a rise in temperature in one or other of its stages, but very seldom during its entire duration. (The stages are given according to Dr. Wyatt, who, as is well known, first described the disease.) 2. In a few cases only does the disease begin with a sudden rise of the bodily heat, as in some forms of acute disease. 3. The thermometric results are extraordinarily variable, so that it is quite impossible to establish any typical temperature curve. 4. In uncomplicated cases of tubercular meningitis the temperature rarely exceeds 102.2° F.; it generally varies between 100° F. and 102° F., but it may also sink some degrees below the normal. 5. The most common type is the remittent, with the usual day fluctuations. The variations within twenty-four hours are normal, or more than normal; sometimes they are very irregular, with more or less sudden rise or fall at any stage and at different periods in the twenty-four hours. 6. If the tubercular meningitis is the terminal affection of some previously existing febrile disease—as, for instance, a

coxitis, or any bone- or other joint-lesion,—the average temperature will be higher than in other cases; but, in other respects, the course of the disease will be unaffected. 7. In the cases with acute general miliary tuberculosis the febrile exacerbations are more considerable and the variations more marked.—*Medical Times and Gazette*, Jan. 15, 1881.

Epilepsy and its Differential Diagnosis from Hystero-Epilepsy.

In view of those not infrequent cases of hysteria closely simulating epilepsy, and of epilepsy occurring in hysterical patients, we think our readers will peruse with some interest a short account of an address delivered on the above subject by Professor von STOFFELLA, of Vienna, to the Medical Society of Vienna. Professor von Stoffella employs the term epilepsy as a collective expression for the sum of certain symptoms. Following Nothnagel he believes that essentially it consists in a peculiar condition, "a change *sui generis*," in the central nervous system, which change is characterized by increased irritability, more especially of the pons and the medulla oblongata, the reflex vaso-motor and muscular centres situated in these portions of the brain reacting to the slightest stimulus. This epileptic condition or "epileptic alteration" (Nothnagel) is to be distinguished from the prolonged comatose condition of rapidly consecutive epileptic attacks—the *status epilepticus*, or *état epileptique*, *état de mal* of French writers. Loss of consciousness more or less complete is an absolutely constant symptom of epilepsy; while, on the other hand, the tonic and clonic convulsions may fail, as in the *petit mal* of French writers, which is undoubtedly epilepsy.

Trousseau speaks of certain cases, which he would designate by the term "partial epilepsy," where the epileptic convulsions are confined to the spot in which the aura originates, and there is no loss of consciousness; and to this class he would refer many cases of angina pectoris. Professor von Stoffella practically refuses to admit these cases into the category of epilepsy, and recognizes no fundamental analogy between angina pectoris and epilepsy. Proceeding with his definition, Professor von Stoffella remarks that epilepsy is in its nature a chronic disease; and it therefore does not include those cases where epileptiform convulsions are caused by an irritation—*e. g.*, the eruption of teeth in children,—and subside at once on the removal of that irritation. So also it does not include those cases of epileptiform convulsions resulting from cerebral anæmia or hyperæmia caused by coarse cerebral disease, such as profuse cerebral hemorrhage, large tumours, acute hydrocephalus, emboli, etc. Such epileptiform attacks are distinguished from epilepsy by the frequent absence of a stage of tonic spasm, by the longer duration of the convulsions, and sopor, and by the frequent absence of laryngeal spasm.

In epilepsy no coarse change is found in the pons or medulla oblongata; and possibly, as Schröder van der Kolk says, the dilated capillaries, the granular albuminous exudation, and corpora amyloacea are the results rather than the anatomical causes of the disease. This we must note, however, does not imply that coarse brain disease may not lead to the "epileptic alteration" above mentioned, for affections of the cortex, and more especially tumours of the convexity of the cortex frequently cause a unilateral epilepsy.

In the differential diagnosis of pronounced epilepsy and hystero-epilepsy, the loss of consciousness in epilepsy is not absolutely distinctive, for there are undoubted cases of hystero-epilepsy where the consciousness is clouded or even entirely lost. The following are important points of distinction: 1. The aura of hysteria is generally the *globus hystericus*, a feeling as of a ball pressing on the umbilical and epigastric regions, and rising gradually to the throat, where it

causes a feeling of constriction. We may notice that this is no imaginary feeling, but is really a spasmodic constriction of the œsophagus passing gradually upwards to the pharynx. The aura of epilepsy is described in various ways, like a breath of wind or like formication. However short the hysteric aura may be, it is of longer duration than the aura of epilepsy, which is of lightning rapidity. 2. The hysteric attack is more noisy; the movements more extensive, not confined principally to one half of the body, as is frequently the case in epilepsy; and the attack frequently ends in a fit of weeping or laughing. An epileptic, on the other hand, after the cry with which the attack usually begins, is absolutely silent, and rarely moves from the spot where he drops down. 3. Charcot has observed that in a tonic hysteric attack, even if slight, the temperature rises just as in an epileptic attack, about 2° Fahr. But in a case of repeated epileptic attacks (*e. g.*, fifteen to twenty in twenty-four hours) the temperature will rise to 41° Cent. or higher (105.8° Fahr.); while, however often the epileptiform hysteric attacks occur, the temperature does not rise above 38° Cent. or thereabout (100.4° Fahr.). For example, in a case of hystero-epilepsy recorded by Charcot, where the attacks lasted over two months, numbering one day as many as 150 to 200, with complete loss of consciousness, the rectal temperature throughout was 37.8° Cent. (100° Fahr.), with short exceptions of 38.5° Cent. (101.3° Fahr.). In only one fatal case of hystero-epilepsy recorded by Wunderlich did the temperature rise immediately before death to 43° Cent. (109.4° Fahr.). 4. Romberg mentions that the pupils in hysteria are sensitive to light, while in epilepsy they are absolutely insensitive; and Hasse notes that the hysteric attack lasts longer than the epileptic. 5. In addition to these, Professor von Stofiella remarks on a peculiarity in the pupils of epileptic patients (one or both sides) which he has lately observed, and which we do not remember having seen elsewhere noticed. They are either abnormally wide or abnormally narrow, and exceedingly slow in reacting to light. In the cases in which he has observed this peculiarity—numbering four—it has disappeared under the use of bromide of potassium. He explains the condition by the persistence of the temporary disturbance of circulation in the corpora quadrigemina which causes the insensitiveness of the iris to light during an attack; and remarks that, should the symptom turn out to be constant, it will give a valuable means of diagnosing the nature of the disease in an interval before seeing an attack.—*Med. Times and Gaz.*, Jan. 15, 1881.

Eye Symptoms in Locomotor Ataxy.

At a late meeting of the Ophthalmological Society of the United Kingdom Dr. J. HUGHLINGS JACKSON read an interesting paper on this subject. He first alluded to the great number of very different symptoms in this disease, better called *tabes dorsalis*, since the gait might be normal. He referred to the fact that some of the symptoms were occasionally found in other diseases. At present we have to study the symptoms as they occur in association or in sequence. In this paper three well-marked non-ocular tabetic symptoms were taken and considered in connection with certain ocular symptoms. Twenty-five cases in different stages furnished the material for the communication.

a. Non-ocular symptoms. (1) *The "Lightning" pains.*—There is a succession of sudden, small, severe short pains in batches. As Pierret and Buzzard have pointed out, these pains may occur about the head, although they occur mostly in the legs, trunk, and arms. Charcot and others have observed eruptions in the parts seized by pains. Buzzard has published the case of a patient (whom he permitted the author to see) who, with every batch of pains, has a small crop of herpes; this patient has double optic atrophy and Westphal's symptom (ab-

sence of so-called patellar tendon-reflex), as well as the pains; he walks well. An interesting feature in this case is that the patient had for several years crops of herpes before batches of pain, and then always both together. It is most important to note that pains are denied by some patients, who, nevertheless, have them. Many patients see no relation betwixt their pains and their amaurosis or ataxy, especially if the pains come years before. This one patient strenuously denied having any pains, but it came out, as it were accidentally, that he had had sciatica; really he had had true lightning pains. He had optic atrophy and Westphal's symptom. Many of those who deny pains will admit that they have long been subject to rheumatism or neuralgia, or to "flying gout," and will describe these things so that it is certain they are lightning pains. It is often difficult to get a patient to fix his mind upon his pains. A patient, aged fifty-four, had recently continuous severe pain in the toes and sides of his feet. This he admitted to be one of the symptoms of his disease, but ignored lightning pains, which he had, on and off, for twenty years; those pains were, he would have it, "only gout." It was difficult to get him to attend to questions about them. He had had incontinence of urine nine years; difficulty in walking, according to his account, six months according to his wife, slightly for about eighteen months earlier; his gait was only slightly ataxic. There was Westphal's symptom. The ocular symptom was that his pupils, which were small, did not contract to light.

It is to be insisted on that a patient may have for very many years the pains before any of the striking symptoms of *tabes dorsalis*. "I have recently seen a patient, about sixty years of age, who had pains which I concluded to be 'lightning' for about twenty years. His gait was normal; by most careful testing I could find nothing the matter with it. The patient had besides, of late years, attacks of what he called sickness, but really faintness, with intense depression for hours. That these were slight gastric crises I could not be sure; they possibly depend on derangement caused by very large quantities of opium he had taken for relief of pain. The narcotic taking was evidence of the severity of the pain; he began this practice many years ago. Hearing his account of pain, I looked for Westphal's symptom, and found it. He had an ocular symptom, too. The pupils did not contract at all to light, and, I thought, very sluggishly, during accommodation. I do not in the least doubt that this is a case of posterior sclerosis; Charcot and Bouchard report a case in which pain had been the only symptom; the necropsy showed commencing sclerosis of the posterior columns."

(2) *Westphal's symptom* ("absence of knee phenomenon," "loss of patellar tendon-reflex").—"Everybody knows that smart tapping just below the knee in healthy people makes the leg jump up. As Westphal and Erb point out, this does not occur in the great majority of cases of *tabes*. There is no doubt of the correctness of this statement. The jumping up upon the tapping is usually called patellar tendon-reflex, but as this name involves a theory much disputed and not accepted by the discoverer of the symptom, I will call the loss of this so-called reflex 'absence of the knee phenomenon,' or Westphal's symptom. It is by no means easy to be sure of the absence of the knee phenomenon. We should bare not the knees only, but the legs, let the trousers down, and take off tight drawers; then we should make the patient sit on the edge of a table with his legs hanging loose, and hit carefully both with the hand and a hammer. I am quite certain that the knee phenomenon is said to be absent when it is not. It is admitted that in cases which are evidently not cases of *tabes*, Westphal's symptom is present. Thus in atrophy of the quadriceps the knee phenomenon cannot, for obvious reasons, occur. Buzzard has published a case of diphtherial paralysis, in which there was Westphal's symptom. On the patient's recovery from the

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paralysis the knee phenomenon returned. I have seen it absent in a case of diphtherial paralysis, but have not heard of the progress of the patient."

(3) *The ataxic gait.*—Under this head the author gave briefly the explanation of the gait of tabes dorsalis, which he gave in the *Lancet*, Jan. 30th, 1875, and the *Medical Times and Gazette*, July, 1873. He believes the so-called disorder of co-ordination to be a double condition—paresis of some movements and overaction of others. He illustrated by the duplex effects of paralysis of ocular muscles. A similar explanation has since been given by Pierret.

b. *Three eye symptoms.*—"One great question of interest is as to the frequency with which eye symptoms are the earliest symptoms. Since the Argyll Robertson's symptom does not inconvenience patients, it is hard to say whether it is ever first or not. I was never consulted for that symptom, although, as I shall mention shortly, I was once consulted for a condition somewhat like it. Excluding from consideration for the moment Argyll Robertson's symptom and Westphal's symptom, since we cannot learn anything of them from the patients' accounts, I found in nineteen cases that the earliest symptoms were as follows: in ten cases pains, in six double vision, in one abnormal gait, in one optic atrophy, in one mental symptoms; probably the last was a case of general paresis. The pains are often neglected in taking note of the earliest symptoms; manifestly this puts all wrong; makes the case seem to begin months or years later than it really does."

(1) *Paralysis of parts supplied by oculo-motor nerve trunks.*—Several cases were alluded to under this head. "A man aged sixty-three, who twelve months before had had paralysis of parts supplied by the left third nerve. I could find no symptom of tabes with one very important exception: this was Westphal's symptom. Not very long ago I should have had to say that he had no symptom of tabes. I could only have guessed tabes. Thanks to Westphal, I now feel sure that this patient is tabetic. It is important to say expressly that this patient's pupils acted well to light and during accommodation; he had no pains of any sort anywhere. He complained only of a heaviness in his head."

(2) *Alterations of pupils.*—The common condition described is what is called the Argyll Robertson pupil; the pupil does not act to light, and does not act during accommodation. This has been observed in tabes by Hempel, Vincent, Erb, Hutchinson, and others. It is a double condition, negative and positive, and in this way resembles the so-called disorder of co-ordination of locomotor movements. Erb calls the condition of inactivity of the pupil, "reflex pupillary immobility," and advances an hypothesis as to its fundamental community of character with Westphal's symptom. That hypothesis, however, had been previously made by Buzzard; he points out that both in Westphal's symptom and in the Argyll Robertson symptom there is loss of a reflex movement when the more voluntary movement is retained. Buzzard's hypothesis seems to harmonize with the explanation suggested as to the peculiarity of the gait. It must be remembered that we have not merely an affair of light and pupil. It is well known that brisk cutaneous irritations cause the pupil to enlarge; pinching a comatose man will often enlarge his pupils. Erb tells us that the pupils inactive to light in cases of tabes are not affected by such procedures; he says, too, that they are not affected during lightning pains. Frequently the tabetic pupil when inactive to light is myotic also. We have in all cases to consider the size as well as the immobility of the pupil; we must remember in this regard that the senile myotic pupil contracts to light. "Although much impressed by Buzzard's generalization already mentioned, I adopt no theory on the duplex condition of the pupil. I show a diagram copied from a paper by Erb (Seguin's *Archives of Medicine*, Oct. 1880) which gives that physician's view of the central conditions correspond-

ing to the double pupillary condition. The following case is, in my experience, a very rare one: A woman, aged twenty-six, was sent to me simply because her right pupil was larger than the left. It had been so three years. The right pupil was dilated, and absolutely motionless to light, and also during accommodation. Yet her ciliary accommodation on this side was perfect. This was severely tested by Mr. Couper. She could read No. 1 Jaeger from fourteen inches up to five, or by effort to four. The field was perfect. The fundus was normal, except that the veins were large, and convoluted at the disk, probably physiological; the media were clear. Her sight with this eye was perfect. The pupil of the left eye was most active, and of normal size; the left disk was slightly paler than the right; the veins as on the right; macula normal; doubtful slight limitation of nasal part of field. She could read Jaeger No. 2 with the left eye, but the centre syllable of a long word seemed blurred. This case puzzled me. She seemed to be in perfect health except for the ocular abnormalities mentioned. It occurred to me to test her knees. Neither I nor Mr. Couper found the smallest trace of the knee phenomenon. Several times did I re-examine into this, and pertinaciously inquire for other symptoms of tabes; there were no other symptoms of any kind. Except for the two things mentioned she is in seemingly perfect health." It is not said of Argyll Robertson's symptom that it is peculiar to tabes. It may be found in general paresis of alienists, at least reflex pupillary immobility, less frequently is there myosis, and the size of the pupils is more often unequal. Erb has found the pupillary condition in patients who had no other nervous symptoms, as well as in nervous affections which could neither be classed as tabes nor as general paresis. Again, it is not said that the action to light may not be present in very well marked cases of tabes. A man sixty-five had, as he was told by Pagenstecher, paralysis of the right external rectus in 1874; there was a return of double vision from some cause in 1876. He was subject to pains in his legs, his gait was ataxic; there was Westphal's symptom. He was obliged to carry a catheter to draw off his water. This patient's pupils do act to light. This was observed by Mr. Laidlaw Purves also, to whom the patient was sent for deafness. The following statement refers to cases from the pupil point of view. There were thirteen cases in which there was no optic atrophy. In ten of them the pupils did not act to light (in one case the pupil on but one side was inactive and was so in all ways). In nine of the ten cases of inactive pupils there was Westphal's symptom. Now as to paralysis of the oculo-motor nerves in the same thirteen cases. In one case with normal pupils and Westphal's symptom there had been paralysis of the third nerve. In one case of inactive pupils with Westphal's symptom there had been temporary double vision. In another case with inactive pupils and Westphal's symptom there was paralysis of one sixth nerve.

(3) *Optic atrophy*.—Tabes dorsalis is a disease which, like general paralysis, rarely occurs in women. "When clinical assistant at Moorfields, about twenty years ago, I was struck with the fact that many of the men who had 'white atrophy' of the optic disks had also pains in their legs—the pains were lightning pains. Later on, making a distinction as to the kind of atrophy, I concluded that the pains were a symptomatic link betwixt 'uncomplicated amaurosis' and locomotor ataxy. This relation had been previously noticed. In the *Medical Times and Gazette* of Sept. 1st, 1866, I wrote: 'We have (1) amaurosis without pains in the legs; (2) amaurosis with pains in the legs only; (3) amaurosis with pains in the legs and difficulty in co-ordinating the legs; (4) pains in the legs and difficulty in co-ordinating the legs, without amaurosis; (5) amaurosis without pains in the legs and with difficulty of co-ordination. I could now put five patients in a room showing the above sets of symptoms.' The term 'amauro-

sis' meant then atrophy which did not follow neuritis. I mention what I observed not with any view to priority, having none, but because what I then said, some fourteen years ago, was denied, and the authority of Duchenne, that the amaurosis in locomotor ataxy presented quite the ordinary features of atrophy of the optic nerve as it occurs from other causes, was quoted against me." The atrophy is now more particularly described as gray degeneration, and is supposed by Charcot and others to be parenchymatous. The peculiar limitation of the field of vision in cases of the atrophy in tabes is significant when we consider that the developed disease is in great part one of the locomotor system. The limitation would seem to correspond roughly to certain ocular deviations from cerebellar disease, in the way that hemiopia does to lateral deviation of the eyes from cerebellar disease. In all cases of optic atrophy we should inquire for the pains, test the knees whether the gait be abnormal or not. The pains are often bridging symptoms, betwixt so-called uncomplicated amaurosis and tabes. Charcot says that so far back as 1868 he pointed out that the great majority of women admitted into La Salpêtrière for amaurosis have sooner or later manifestations of tabes. He mentions one case in which the amaurosis preceded the pains ten years. Gowers has seen a case of tabes in which optic atrophy preceded other ataxic symptoms twenty years. In the twenty-five cases mentioned there were twelve of optic atrophy. In two there were also ocular paralysis, and in one a history of it; in nine there was Westphal's symptom. In one of the three without this symptom there had been no pains; gait was slightly ataxic. In the second there had been double vision ten years ago; there is now paresis of the left third nerve; this patient had pains; his gait was normal. The third case was one of atrophy of one disk, with limitation of the field outwards and downwards; this patient saw green as gray, and red as reddish-brown; he had pains; his gait was good.

Dr. GOWERS stated that he had examined a number of cases of ataxy with myosis and loss of reflex action to light, and he could confirm Erb's statement that in this condition the pupils did not dilate on stimulation of the skin. He thought, however, that we must hesitate in regarding this phenomenon as strictly analogous to the loss of other reflex actions in the disease, which were due to a lesion of the sensory structures or reflex centres. It might be the result merely of the motor paralysis of the sympathetic fibres for the dilator pupillæ. This view was confirmed by one case which he had seen, in which, although there was loss of reflex action to light, there was not myosis, and the pupils did dilate on cutaneous stimulation.—*Lancet*, Dec. 18, 1880.

The Influence of Menstruation in the Progress of Pulmonary Consumption.

Dr. DAREMBERG, of Mentone, has been writing in the *Archives Générales de Médecine* upon this subject. There is no question that disturbances of the menstrual function very commonly accompany phthisis; and the view of their relationship to one another which is commonly accepted in this country, is that the latter is the cause, and the former the effect. Dr. Daremberg has seen reason for thinking that the state of the menstrual function has a distinct influence upon the lung-disease. His experience leads him to make the following statements upon this subject: Menstruation is sometimes a cause of phthisis; in the sense that women become phthisical who would not have done so had they been free from the monthly loss of blood. When phthisical changes have begun, the menstrual function may lead to attacks of congestion, either around old foci of disease, or in healthy parts of the lung, which may go on to hemorrhage or to inflammation. When the catamenial flow is suppressed, the ovarian molimen being still

present, these congestions are liable to become more intense and more dangerous. If the discharge should persist after ovulation has disappeared, it becomes simply a cause of anæmia, but does not provoke reflex congestions. When the two functions, uterine and ovarian, are suppressed—that is, when the menopause has completely taken place—menstrual congestions are no more to be dreaded. After delivery, similar pulmonary congestions of reflex origin are to be feared. The abrupt suppression of the menses cannot *per se* bring about tuberculosis; but it may cause its development in women predisposed to it. From these pathological generalizations he draws the following principles of treatment. In phthisical women the lungs should be carefully watched during the menstrual period, and at the least sign of mischief the nervous and vascular excitement should be calmed by the moderate use of digitalis, bromide of potassium, and quinine; absolute rest should be advised, and the pulmonary organs should be acted on by energetic revulsives (blisters, croton oil, etc.), and this during several successive periods. If the menstrual flow should cease while the ovarian molimen continues its course, the same treatment should be carried out, with the addition of external means to bring back the discharge (blisters, friction, hot baths, leeches to the lower extremities); and if these do not succeed, then the careful employment of purgatives and internal emmenagogues (general stimulants, such as alcohol and acetate of ammonia; local excitants, as rue, savin, aloes, uva ursi, apiol, ergot of rye, borax; and tonics, viz., strychnia and quinine). These measures, he holds, will do good, even if they should not re-establish menstruation. When the discharge persists after ovulation has ceased, we should with caution endeavour to diminish it, bearing in mind, that its sudden suppression may be dangerous; and the same remark applies to leucorrhœa. When both functions (uterine and ovarian) have disappeared, we should keep from seeking to re-excite the flow, for it will then be useless and cause anæmia. When, after a long absence, the menses reappear, without any great improvement being evident in the local and general condition, it is necessary to be very cautious about giving a favourable prognosis; for this apparent return of menstruation often indicates grave disturbance of the circulation, and is the precursor of serious mischief.—*Med. Times and Gazette*, Jan. 8, 1881.

The Muscles in Phthisis.

Two years ago FRÄNKEL, observing how many patients with phthisis presented hoarseness without any corresponding laryngoscopic changes, investigated the condition of the laryngeal muscles in order to ascertain whether any changes in them explained the symptom. In a considerable number of cases, both those in which there were ulcerations in the mucous membrane and those in which the naked-eye appearances were normal, he found constantly an atrophy of the striated muscles. The contractile substance was broken up, the striation indistinct, and a granular opacity had replaced the normal translucence, while in the fibres in which the process was more advanced there was an actual molecular destruction, and ultimate disappearance of the proper tissue. The connective tissue between the primitive bundles also presented a marked cell-formation, and the muscle nuclei were so increased in number as to constitute cellular sheaths to the fibres. This increase seemed to have produced additional damage to the muscular fibres, since these in places were apparently destroyed by the pressure of the groups of cells.

These observations have been confirmed by a series of investigations on forty phthisical subjects by Dr. POSADSKY of St. Petersburg, which show that the changes found by Fränkel in the muscles of the larynx exist also in other mus-

cles examined—viz., those of the upper and lower limbs, flexors and extensors, the intercostal muscles, and the diaphragm. The muscular fibres were pale, and exceedingly friable, so that they broke across with undue readiness, and could with difficulty be separated into longitudinal fibrils. This was found in two-thirds of the cases; in the remaining third the muscles were perfectly healthy. The microscope showed a granular degeneration of the fibres in all cases in which the naked-eye changes were observed. In many cases the transverse striation had entirely disappeared. Many of the fibres were strikingly narrowed, and some empty sarcolemma sheaths were seen. Fibres which were not degenerated also showed the tendency to break up into transverse segments which had been noted in the naked-eye examination. Why these changes should be so conspicuous in some cases of phthisis and absent in others it is difficult to say, since the cases with and those without the change presented nearly the same conditions and nearly the same visceral changes. The changes in the interstitial connective tissue described by Fränkel were not found by Posadsky.—*Lancet*, Jan. 22, 1881.

Passive Congestion of the Spleen.

At the suggestion of Virchow, the histological changes in the spleen which result from passive congestion have been studied very carefully by Dr. R. NIKOLAIDES. In the indurated organ, the naked eye can detect a thick white layer around the vessels, which renders the tint of the section a paler red than might be expected. Under the microscope the walls of the bloodvessels, and especially those of the arteries, are seen to be enormously thickened by an increase of the adventitia and the adjacent zone of tissue, which passes gradually into the neighbouring reticulum of the splenic pulp. The trabeculae are thickened, and the contiguous cells of the pulp undergo atrophy, just as do the outer cells of the acini of the liver in cirrhosis. These changes are more or less marked in all congested spleens, and confer upon the organ its increased density. Their degree appears to depend upon the slowness with which the mechanical congestion is developed. Besides these changes, alterations occur also in the intima of the vessels. They are most marked in the arteries, and are only found in the veins in very chronic cases. In the veins the change consists in merely fatty degeneration; but the inner coat of the arteries presents an overgrowth of all the connective tissue layers—a true end-arteritis, similar to that which Virchow has described in the veins of some other organs, as the lungs and liver, in passive congestion. It is difficult to say whether the muscular coat of the vessels is thickened or not; but Nikolaides believes that there is a considerable increase in the circular muscular fibres. Not only is this conclusion suggested by histological examination, but it is remarked that the mechanical congestion of the spleen never entails the degree of hyperæmia met with in other organs, as the liver and the kidney, in spite of the fact that the circulatory arrangement of the spleen is highly favourable to the occurrence of such hyperæmia. This fact is regarded as supporting the view that in congestion the muscular walls of the arteries contract, overgrow, and lessen the hyperæmia. The evidence on this point seems scarcely conclusive. Some share in this effect might be ascribed to an overaction of the muscular fibres proper to the splenic pulp, since it is difficult to understand, without such overaction, how the blood could be lessened in an organ, like the spleen, destitute of capillaries, by contraction of the arteries, if there exists an obstruction to the exit of blood. The splenic follicles, Nikolaides believes to take no part in the overgrowth of tissue which results from passive congestion.—*Lancet*, Jan. 29, 1881.

The Treatment of Abscess of the Liver.

In a recent communication (*Bulletin de l'Académie de Médecine*, No. 43, 1880), M. J. ROCHARD describes the treatment of hepatic abscess by free and direct incision, combined with the practice of Lister's antiseptic method. Three cases are reported, in which this treatment was carried out with complete success by Dr. STROMEYER LITTLE, of Shanghai.

Abscess of the liver, M. Rochard states, when not treated surgically, causes death in about 80 per cent. of the cases. The old methods of surgical treatment have not reduced this rate of mortality to any great extent; certainly, in cases of large abscess, to not less than 68 per cent. Consequently, surgeons have not been eager in interfering, and some, with Dr. Maclean, in consideration of the prolonged suppuration resulting from the opening of a large hepatic abscess, and of the putrefaction of pus and the gangrene consequent on the penetration of air into the large cavity, have declined to intervene. Most surgeons who have to deal with cases of this kind, think it right to open the abscess, but, before doing so, wait until oedema and redness of the abdominal wall have indicated the point to which the pus is making its way, and often whilst waiting lose their patient, or find that the abscess has burst internally. Finally, in cases where such practice is successful, the cure is attained at the price to the patient of many months of suffering and danger. A method which would permit the surgeon to act in good time, to operate with certainty, and to effect a cure within one month, must be regarded as constituting considerable progress. That such progress has been made seems, according to M. Rochard, to be proved by the results of the treatment carried out in the three recorded cases. Dr. Little had previously treated twenty cases of hepatic abscess either by frequently repeated puncture and aspiration, or by incision without any antiseptic precautions. All the patients died with the exception of one, in whom a small abscess with a chronic course projected into the epigastric region, and was opened there without any bad results. In his three recent cases, Dr. Little had recourse to the method described and discussed in M. Rochard's communication. This method consists in determining, with as much precision as possible, the seat of the purulent collection; in verifying the diagnosis by puncture and aspiration; then using the needle as a conductor, making a free incision into the abscess, clearing out all the contents, and, finally, preventing consecutive mischief by antiseptic injections, drainage, and Listerian dressings. The diagnosis of abscess of the liver, M. Rochard points out, is not easy. Local pain is not manifested until the pus has reached the surface of the organ, and perihepatitis has been excited. This symptom is often absent, even in cases of very large hepatic abscess. Reflex pain in the right shoulder, also, is very frequently absent. The only symptoms on which reliance can be placed, are increase in the size of the organ, digestive and respiratory disturbances, and fever. In most of the cases, the hepatitis succeeds dysentery or dysenteric diarrhoea. When, in a subject who has suffered from either of these affections, fever occurs, the digestion becomes disturbed, and the liver enlarges, it may be concluded that hepatitis has been developed. If the fever present a remittent character, with evening exacerbations, preceded by rigors and followed by sweating, the formation of an abscess should be expected, and steps at once taken to test this diagnosis by puncture and aspiration. The abscess is situated in the right lobe in seven out of ten cases, and in most cases projects at the convex surface of the organ. The dulness then extends towards the nipple, and is bounded by a curve with its convexity upwards. The patient is troubled by cough, dyspnoea, and pain during inspiration, and occasionally auscultation and

percussion reveal the signs of diaphragmatic pleurisy. In a case of this kind, the most favourable seat of an exploratory puncture would be the eighth or ninth intercostal space, in a line with the anterior border of the axilla. When the purulent collection projects at the concave surface of the liver, the false ribs are expanded, and the extent of the swelling may be made out by palpation. The spontaneous pains, when they occur, radiate towards the iliac fossæ and the sacral region. Vomiting is a frequent symptom. An exploratory puncture in such case is best made below the margin of the eighth rib, and at the point where there is tenderness on pressure.

The preliminary puncture is made by Dr. Little with a needle about three millimetres in diameter, the instrument having been dipped in carbolic oil, and the integument of the right hypochondrium washed with a 5 per cent. solution of carbolic acid. It is often found necessary to introduce the needle several times before pus can be obtained. These repeated punctures of the liver, as has been proved by the observations of Jaccoud and Lavigerie, are absolutely free from danger.

When the presence of pus has been made out, a free incision through the whole thickness of the abdominal wall is made by the side of the needle, and parallel to the ribs. The evacuation of the fluid contents of the abscess is facilitated by the introduction of forceps between the lips of the wound, and by expansion of the blades, and also by the transmission of manual pressure through the abdominal wall to the inferior surface of the liver. The cavity of the abscess is then washed out with a weak solution of carbolic acid, until no traces of pus, of flakes, and of portions of slough, can any longer be seen in the returning current of the injected fluid. A piece of drainage-tubing of very wide calibre is then passed to the bottom of the cavity, the outer portion of this being cut off on a level with the wound. Application is then made of the ordinary antiseptic dressing of gauze with protective and jaconette, which dressing is maintained by means of an elastic bandage. This dressing is changed daily, and at the same time the protruded portion of the drainage-tube is cut away. The results of this treatment in the three cases treated by Dr. Stromeyer Little were most satisfactory. The operation in each instance was immediately followed by improvement in the general condition of the patient. There was also immediate disappearance of fever, and complete absence, during the subsequent treatment, of any febrile reaction. In two cases, complete cure was attained within one month, and in the third case, in which a second operation was necessitated through relapse, the patient was able to travel on the seventy-sixth day.—*London Med. Record*, Jan. 15, 1881.

Jaundice in New-born Infants: Icterus Neonatorum.

There are many points of interest in the jaundice to which young infants are peculiarly liable. As age advances, they of course become liable to jaundice from exactly the same causes which produce it in adults. It occurs too, sometimes, as an epidemic, and would then seem to be dependent on some cause which might be either infection or one more or less widely spread and more or less uniformly acting within a given area. The etiology of the disease in new-born infants is difficult to study, owing to the nature of the circumstances; and thus at present we have hardly passed the stage of hypothesis on this point, although the disease is very common.

The latest summary of our present knowledge is from the pen of Dr. ALOIS EPSTEIN; it is published in Volkmann's *Sammlung Klinischer Vorträge*. It would seem desirable to exclude from this consideration all cases of more or

less congenital jaundice, due to any malformations. Thus, obliteration of the larger ducts would offer an impediment to the flow of the bile; and this would lead to jaundice. Occasionally there is found an absence of the gall-bladder also, though this, except the ductus communis was also absent or closed, could never cause jaundice. Then, again, there may be congenital disease of the parenchyma (interstitial hepatitis), or occasionally cirrhosis, due to syphilis. Finally may be mentioned the pyæmic hepatitis, spreading along the umbilical vein, which, though rare, is nevertheless sometimes met with. With such cases we are not at present occupied, for there are anatomical grounds quite sufficient to account for the morbid condition.

Icterus neonatorum is characterized by an abnormal deposit of yellow pigment in the skin and mucous membranes. Many authors consider this jaundice as physiological and normal. They regard it as one of the transformation phases of the bright-red colour of the integument of new-born babies, which set in shortly after birth, and which they consider due to the altered temperature of the surrounding medium in which a child lives after intra-uterine life is over. It seems difficult, says our author, to accept such a theory, because so many children are born healthy and strong who yet never show a trace of this yellowness. Neither does the intensity of the colour stand in any constant relationship with the intensity of the previous redness; and further, children who are pale when born become jaundiced, while those of a deep red colour not infrequently change to a normal tint without evincing any yellowness at all. We must also remember that an erythema (redness) of several days' duration is itself very often a sign of impaired respiration and circulation. For these reasons we are bound to regard the icterus as a pathological condition.

The frequency with which jaundice is found will never be very accurately made out, owing to the difficulties of collecting the cases from private practice. But it would seem that the disease is much less common in the country and in private generally than among infants born in public lying-in institutions. This deduction is entirely found on the statement of mothers, who have already had children which were not jaundiced; but it must be counterbalanced by others, which go to prove without doubt that many exceptions to this rule occur. Dr. Charles West states, in his work on Children's Diseases (sixth edition), that jaundice seldom occurred in the Dublin Rotunda, while few children escaped it in the Paris Foundling Hospital. He believes that this was due to the excellent sanitary arrangements of the former, while those children which get into the Foundling Hospital in Paris have to contend largely with the ill effects of bad air as well as of cold. Seux, in Marseilles, found it present in 15 per cent. of the children; Scanzoni, in Würzburg, in 58 per cent.; Porak, in the Cochin Hospital in Paris, in 80 per cent.; and Kehrer, in Vienna, in 68.4 per cent.

The jaundice generally comes on during the first week of life, and in a majority of cases on the second or third day after birth; from this time, as age advances, the cases become rarer. It usually lasts from six to eight days, so that among children two weeks old it is rare to meet with any having a yellow skin. In premature children, in whom the physiological processes (the falling-off of the navel-string, the exfoliation of the epidermis, etc.) are somewhat retarded, so also the pathological take place less rapidly, and hence the jaundice may be protracted for two or three days longer. The intensity of the colour varies, among other things, with the complexion of the child, from a pale straw-yellow to a bright lemon or yelk-yellow. In cases the prognosis of which is bad, due to plugging of peripheral ducts, the yellow assumes a bluish or greenish tint—cyanosis icterica, in fact. The distribution of the pigment is not always uniform; thus the conjunctiva, though often yellow in colour, may be free, or not tinted to the same

extent as other tissues. The same also applies to the subcutaneous connective tissues. On the whole, it may be said that the yellowness depends chiefly on the amount of blood in a part, and on circulatory conditions of individual parts, and that the various shades which can be detected in new-born children would seem to be best explained by the transparency of the epidermis. At the approach of death, not infrequently the jaundice suddenly disappears from the integuments; and a conjunctiva which has shown palpable signs of icteric pigmentation during life, may be found quite free from it after death.

As regards *symptoms*, it will be best to emphasize those which do not occur in the jaundice of adult life. Pain in the region of the liver, and palpable enlargement of the organ, are not as a rule present, although the edge of the gland may just be felt if the abdominal walls are fairly flaccid. Slowing of the pulse is not present, nor is there any appreciable change in respiration. The function of the intestinal tract is normal; there is generally no constipation. On the other hand, any catarrh which may happen to be present cannot be attributed to the jaundice. The feces are always bile-stained, never, as in adults, clay-coloured, neither is there any obvious excess of fat present in them. The urine, even in intense forms of the disease, is often free from colour, and generally only light yellow; very rarely is it darkly stained as in adults, and when it is there are for the most part blood-corpuscles or blood-products to be found at the same time. Fairly often there is albumen in the urine, the presence of which, however, during the first few days of life does not seem to be very uncommon. It may also be mentioned that dark-coloured urine in children the subject of this complaint, on being tested, does not always contain bile-pigment; and even when it stains the linen yellow, it is not always to be put down to the presence of bile, as is too frequently done.

Epstein's method of obtaining the pigment is as follows: He collects the urine (with a catheter if necessary), and precipitates any albumen, if present; it is then shaken up with lime-water; the filtrate is washed in alcohol, and sulphuric acid added. The sediment thus produced consists of amorphous masses of uric acid together with the characteristic crystalline, or grains of, pigment. The pigment is easily distinguishable from the uric acid by its yellowish or yellowish-red colour. On adding caustic soda and acetic acid, the uric acid forms urate of soda, while the pigment remains unchanged. On microscopic examination, the pigment is found in the form of fine, tuft-like needles, or in tables, or sometimes as an amorphous deposit. It may likewise be found in the kidney-tubules and epithelium, and in the bloodvessels and interstitial connective tissue. Besides these places, this same pigment may be found more or less richly in the blood and in the other organs, chiefly in the neighbourhood of the vessels. Epstein has repeatedly found it in the brain, in circumscribed patches. It occurs also in the liver, but it is not found there more abundantly than in the places just mentioned. There is still some uncertainty as to the exact nature and source of this pigment in icteric children. Meckel and Neumann regard it as bilirubin, while Virchow and Buhl consider it as hæmatoidin; but, seeing that some chemists regard these two substances as almost identical, further research will be necessary before the point can be definitely settled.

The *etiology* of the condition is one of difficulty, and it must be by the way of exclusion rather than by direct means that we approach it. Most authors, if not all, and until quite lately, have not unnaturally associated it with changes in the liver, and regard it as hepatogenic—i. e., as resulting from absorption of formed bile into the blood-circulation. Frerichs sought to explain it as a result of the altered blood-pressure in the liver which commenced at the moment of birth, when the navel-string was tied. But, though very clever, this is merely hypo-

thetical, for we are in complete darkness as to whether any alteration in the blood-pressure really does take place; if it were so, the condition at once becomes physiological, and it should be found, to a greater or lesser degree, in all children. Virchow, as long ago as 1846, pointed out the probable hæmatogenic origin, but a little later he withdrew from this opinion, and came to regard the jaundice as catarrhal and due to mechanical causes. Virchow's name secured for the catarrhal doctrine a wide acceptance. Epstein has bestowed special attention to the elucidation of this point, and has been unable to accept Virchow's teaching, for in most cases the ductus choledochus is found to contain bile along its whole length, the feces are bile-stained, and the liver, as regards size, colour, and consistence, is always normal. Other authors have sought for the source of this pigment in the integuments. Billard thought it due to congestion, and to the consequent transudation of blood-colouring matter. West also adopted this view. But, considering that the intensity of the jaundice, no less than its occurrence, seems to be quite independent of hemorrhages, such as occur after the use of forceps, or cephalhæmatoma, one is led to doubt this theory of mere congestion and transudation. On the other hand, there is much to confirm a hæmatogenic source from other causes than transudation—viz., an autochthonous formation of abnormal pigment resulting from the decomposition of fetal red blood-corpuscles in the bloodvessels, and quite independent of the liver. The view is upheld by the well-known occurrence of jaundice in many of the acute infectious diseases and in hemoglobinuria. Kühne has shown that the injection into the blood of a variety of substances (water, gallic acid, ether, ammonia) gives rise to the presence of bile-pigment in the urine. Gubler, in the year 1857, described a form of jaundice under the term "*ictère hémaphéique*" in adults, resulting from a rapid destruction of red corpuscles. He distinguishes it from mechanical jaundice (*ictère biliphéique*) by its lighter colour, the absence of retardation of the pulse, and of itching in the skin. In the next place, are there any facts which confirm the occurrence of a destruction of blood-cells? Microscopic examination, as well as an enumeration of the blood-cells, largely confirm this view. According to Neumann and Kölliker, the blood of full-term infants contains a number of pigment granules, which after a while disappear; and further, there are observations which show that infants' blood is specifically heavier and richer in hæmatoidin than maternal blood. Spectral analysis also confirms this latter observation; while Hayem has shown that during the first fourteen days of life, and from day to day, the corpuscles present obvious and remarkable differences both in number and form. This being the case, we next inquire what should lead to such destruction of the red blood-cells. In answering the question, we naturally think of the altered conditions under which the child begins to live after intra-uterine life has ended, and of the important physiological changes by which this is brought about. Thus it seems probable that a large quantity of red corpuscles are called suddenly into use for respiratory purposes when the breathing medium is no longer the half-oxidized blood of the uterine sinuses, but the air directly inhaled into the lungs. Moreover, the blood corpuscles must be formed in a new way—not as in the fetal state, from maternal fluids, but from the products of digestion. Thus it may be that the fetal corpuscles may differ in certain respects from those of independent life. All things considered, then, this seems to be by far the most probable explanation of the occurrence of bile-pigment in the skin of young infants; it is favoured rather than otherwise by the fact that this so-called jaundice is most common in prematurely born infants and in those which are born weakly. Unfavourable hygienic circumstances will naturally react, and with proportionate power, on weakly children; and thus will be accounted for the large percentage of cases met with

in public institutions, which are chiefly for the use of the poor and needy, as compared with those placed in more favourable circumstances.—*Med. Times and Gaz.*, Dec. 4 and 18, 1880.

A Case of Acute Fibrinuria.

Dr. BAUMÜLLER (Virchow's *Archiv*, Band lxxxii. Heft 2) describes the case of a woman who, after several attacks of hæmaturia, extending over a period of three years, passed white slimy masses, and thereafter improved and recovered. On examining these masses, they were found to consist of casts of the calyces, pelvis, and ureter. Under the microscope the urinary deposit showed numerous pus-corpuscles, and many tiny crystals of triple phosphates, but no epithelium. The coagula consisted of very fine granules in a homogeneous basis substance, with here and there disintegrating red blood-corpuscles. The granules disappeared on treatment with ether. The urine was clear yellow, turbid, neutral; specific gravity of 1014-15; it gave a precipitate on boiling and adding acid, which dissolved in excess. Further examination showed it to contain serum, albumen, and paraglobulin. The coagula were insoluble in water, alcohol, ether, chloroform, alkalies, and concentrated mineral and organic acids, both at ordinary temperatures and on boiling. In caustic potash, concentrated solution of sodium chloride (less in dilute hydrochloric acid), and concentrated acetic acid, there was some swelling to be observed; also after longer action of dilute hydrochloric acid, lime-water, solution of sodium chloride, acetic acid, and alcohol. In alcohol, after two or three days, the swollen masses broke up into ragged shreds. Attempts to digest the masses with gastric juice, obtained from a fistula in a dog, or with artificial gastric juice, failed. He considers the phenomena to have been due to an acute fibrinuria, such as Vogel has described (Virchow's *Handbuch der Specieller Path. und Therapie*, Band vi. 2 Abtheilung, sec. 542), and which is derived from a purulent catarrh of the pelvis of the kidney.—*London Med. Record*, Jan. 15, 1881.

Surgery.

The Catgut Ligature.

There is no part of the surgical practice instituted by Mr. Lister that has excited more interest and attention than his reintroduction of an animal ligature. In spite of many experiments, and much clinical experience, the opinion of the profession is far from unanimous in favour of carbolized catgut. Imperfections in its preparation, and its use in unsuitable cases, may explain a part, if not all, of the failures and accidents that have attended its employment, but its most ardent advocates, we believe, will grant that some improvement in its preparation is still demanded. A recent contribution to our knowledge of the action of catgut ligatures is found in a memoir entitled "Contribution à l'Étude de la Ligature dans le Traitement des Anévrismes," by Dr. G. F. ARNAUD. Dr. ARNAUD ligatured the carotid or femoral artery of dogs fourteen times, using carbolized catgut, and examined the parts from four to sixteen days afterwards. In nine cases the ligature had entirely disappeared, or was only scarcely appreciable; in two it was partially absorbed, with destruction of the knot; and in three it was little altered. In one of the latter only four days had elapsed from the application of the ligature, which may be held to account for the fact; in the other two, examined on the ninth and sixteenth days respectively, there was an absence of

inflammatory reaction and clot, and the ligature was encysted, while for its absorption a rather abundant outpouring of lymph, or development of "granulations," is held to be necessary. In twelve of these cases the outer coat of the artery was found quite unaltered, not having been severed by the ligature; in two it was partially ulcerated, in neither case completely. In twelve cases, the inner and middle coats of the vessel were completely divided, as happens in the use of a silk or hempen thread; in one they were entire, and in one other it was doubtful whether they were partly divided or not. The clot, where not absorbed, was very small, and the obliteration of the artery was complete and firm. Senfleben has stated that internal clot rarely forms with catgut ligatures, but the evidence of these experiments, as well as of others, points to an opposite conclusion. Arnaud concludes that the effect of catgut on the artery is like that of hemp, except—a most important exception—that the outer coat is not ulcerated, the knot of the ligature softening before that occurs. It was noticed, in cases where a strand of catgut was left in the tract of the wound, that there was much more active cell-growth round the ligature than around these strands, with corresponding difference in the rate of absorption. The "absorption" of catgut is thus again fully corroborated, and still more the fact that the use of catgut ligatures is not necessarily followed by the complete severance of the artery, with the attendant risk of secondary hemorrhage, as always follows the use of hemp or silk.—*Lancet*, Jan. 22, 1881.

Gouty Cataract.

Dr. GALEZOWSKI (*Recueil d'Ophthalmologie*, Sept. 1880) records four cases of cataract recurring in gouty subjects. These cataracts belong to the secondary stage of gout; that, namely, in which all the tissues have become thoroughly saturated with the poison. While occupied in looking for glucose in diabetic cataracts, Dr. Galezowski accidentally found that in many cases uric acid salts were present in the crystalline lenses of gouty subjects. Gouty cataracts appear most usually from the ages of 50 to 70, and are generally hard, though he has also seen them in younger subjects of a more or less soft consistence. Gout often acts as the predisposing cause, after operation, of various inflammatory affections of the iris, sclerotic, and less frequently of the choroid. In the gouty diathesis, cataracts often become adherent, and are complicated with synechiae and narrowing of the pupil. The best chance of success in these cases is to place the patient for some weeks before operation on a strictly anti-arthritic regimen, and to give large doses of salicylate of soda. In some of these cases, some days after operation, a collection of blood forms in the lower part of the anterior chamber; in others, it remains suspended in the aqueous humour, rendering it turbid. This blood transudes from the iris or ciliary circle, and is a very constant manifestation of the gouty diathesis. In some cases it would appear that the gouty manifestations in the eye were due to the irritation of the wound, and hence were, in their origin, traumatic. In such cases, local remedies are powerless, but the symptoms at once yield to large doses of salicylate of soda internally.—*London Med. Record*, Jan. 15, 1881.

Syphilis in Cataract.

Dr. GALEZOWSKI (*Recueil d'Ophthalmologie*, Sept. 1880) considers that syphilis may cause cataract in the adult primarily, or predispose to it hereditarily. He gives details of a case of kerato-irido-choroiditis in a child of four years of age affected with syphilis from its birth. In this case, a cataract became developed, and the eye was enucleated. The author has seen, in all, nine cases of congenital

cataract in children born of syphilitic parents. As regards the effects of syphilis in the adult, he has frequently seen cases of monocular cataract affecting an eye in which there was syphilitic choroiditis, while in the other eye the lens was perfectly transparent. He gives details of a case of syphilitic choroiditis attacking one eye, followed by the development of soft cataract six months afterwards in the other.—*London Med. Record*, Jan. 15, 1881.

Examination of Vision in Railway Employés.

The conclusions of the Committee, WARLONT and MOELLER, appointed by the Minister of Public Works in Belgium to report upon the vision of railway employés, with special reference to the detection of Daltonism, have recently been made public (*Annales d'Oculistique*, September–October, 1880). The committee recommends that in future all persons employed on the State Railways should, as regards their visual and chromatic acuity, be placed after examination in one of the following classes, viz., "very satisfactory," "satisfactory," and "unsatisfactory," the latter class being inadmissible into the public service. The requirements of the first class are laid down as follows: 1. Eyes and eyelids healthy, and free from all habitual irritation or congestion; 2. Normal acuity ($= 1$); refraction perfect within the dioptric; 3. A normal field of vision; 4. The power of distinguishing colours to the extent of $\frac{1}{4}$ at least; 5. Complete freedom from cataract or other disease. For the second class the conditions are the same, except that in one of the eyes visual acuity must be normal, in the other it may be $\frac{1}{2}$, and the perception of colour must in one be at least $\frac{2}{3}$, in the other at least $\frac{1}{3}$. In the report is included the instructions for the examining medical officer, which are as follows. Holmgren's colour-test is the one recommended, the candidate being required to match all the shades of several given colours selected at random. Refraction is to be tested by Loiseau's optometer, which is constructed on the principle of finding the reading distance of the patient when using a lens of known focal length. Visual acuity is to be determined by the use of a series of three test types prepared *ad hoc*; the limits of the field of vision by the movements of the hand, held at the distance of 1 metre.—*London Med. Record*, Jan. 15, 1881.

Treatment of Aural Polypi.

Although Professor POLITZER (*Wiener Medizin. Wochenschrift*, July 31, 1880) finds the action of alcohol, as recommended by Löwenberg, excellent in some cases of chronic otorrhœa, he considers that, in regard to the frequency of its good effect, it is inferior to boracic acid, as recommended by Bezold, whilst, in the rapidity of action, it ranks second to the caustic method of Schwartz. In the treatment of polypoid growths, however, the author strongly recommends its use in the form of rectified spirit. This is applied either pure or (if this produces much pain) diluted with an equal quantity of water, and is poured thrice daily, warm, into the meatus, being allowed to remain there from ten to fifteen minutes. The indications for its use are, he considers, as follows: 1. In the treatment of remains of polypi in the meatus, on the membrana tympani, or in the tympanic cavity, which are not removable by operation; 2. In cases of multiple granulations in the meatus, or on the membrana tympani; 3. In diffuse hypertrophy of the tympanic membrane; 4. In cases in which mechanical impediments in the meatus prevent the removal of polypi by instrumental means; 5. It may be employed experimentally in order to avoid an operation if possible in very nervous persons and in young children. The author relates a case in which, after partial removal of a polypus growing from the meatus, a portion of the size of a pea still remained; but, as the patient had to leave the town on business, alcohol

drops were prescribed. When he presented himself again after several months, the remains of the polypus had entirely disappeared. Other cases illustrative of the good effects of alcohol are also described. The author, it may be noted, expressly states that this treatment often requires to be continued for weeks or even months, and mentions that one of its chief advantages is that it can be employed with good effect by any surgeon, no especial skill in manipulation being required, as in the case of the application of strong caustics.—*London Med. Record*, Jan. 15, 1881.

Epithelioma of the Tongue.

A paper read by Prof. VERNEUIL at the Société de Chirurgie (*Bulletin*, November 10, *et seq.*), "On the Inutility and Danger of Pharmaceutical and Topical Treatment of Surgical Epithelioma," gave rise to a prolonged discussion. He observed that he addressed his observations not so much to the members of the Society as to practitioners at large, for while he did not believe that any of his colleagues had any faith in the medical treatment of epithelioma, unfortunately the great mass of practitioners are of a different opinion. He has scarcely ever seen a case that had not previously been treated by iodide of potassium, or even by mercury, while some caustic substance or chlorate of potash has always been used. "At the commencement of my practice, I also, on the faith of others, did what I now condemn." How comes it that a practice which is inefficacious and injurious has become so diffused and tenacious? 1. There is a very general belief that the iodide is a good means against neoplasms. It is, however, a great error to suppose that it is useful in true neoplasms; for, however useful it may be in tertiary syphilis, in scrofulous pseudo-plasms, or in chronic inflammations, it is of no avail in epithelioma or cancer. 2. The tongue is sometimes the seat of syphilitic manifestations, curable by mercury or the iodide, and as lingual syphilis is but ill known, and lingual epithelioma at its commencement still less known, the specific treatment is employed with the vague hope that the medicine will find out what it is suitable for. A cure may in this way be accidentally effected, but can be no rule why mercury should be given in all cases. The diagnosis is the great thing; and since the writings of H. Fournier the diagnosis of a tertiary glossitis is easy. There are, indeed, occasionally hybrid cases in which epithelioma occurs in a syphilitic subject, but this is of little consequence, as the prognosis and treatment of such a case is that of epithelioma. As in the immense majority of cases the diagnosis is easy, the practice of giving mercury or the iodide in epitheliomatous affections of the tongue should be abandoned. 3. Internal remedies are given to seem to be doing something, and not to alarm the patient by announcing the necessity of an operation, which also there may be inability to perform—it being also thought that there will always be time to seek the aid of a surgeon. This fear of alarming the patient about an operation decuples his danger, for this epithelioma, like all those which invade the mucous membranes, is a very dangerous one, although it may sometimes be cured when taken in time. Prof. Verneuil has met with four such cases, but then in these the epithelioma did not exceed the nail in size and was not deeply placed. But when more than a third of the tongue is invaded, when the floor of the mouth is seized, when the glands have degenerated, and the disease has lasted for more than a year, the case has become deplorably serious. The operation might have succeeded at the time when medicines were being given, but no chance of success remains at the late period when the surgeon is consulted. 4. The idea prevails that cauterization is useful for ulcerations, and these ulcers of the tongue are tormented by caustics, forgetting that

this method is useful only when destructive and not merely modificative. 5. When there is but little illusion as to the curative effect of medicines and cauterizations, it is still believed that these means are, at all events, innocent. This is a great error; not only is precious time lost, but the iodide of mercury and the chlorate may aggravate the conditions of the disease.

In the discussion which followed the paper, Dr. ANGER, in confirmation of Prof. Verneuil's views, stated that in a large number of 260 cases of cancer of the tongue which he had collected, he had found that the disease had been aggravated by the administration of the iodide, and especially by mercury. He did not think that the diagnosis was quite so easy as stated by Prof. Verneuil, and in doubtful cases a morsel of the tumour should be examined by the microscope. As a local treatment he had sometimes found interstitial injections of salicylic acid calm the pain, and especially the sympathetic pain of the ear. They even seem to arrest the progress of the disease. Dr. DESPRÈS also believed that Prof. Verneuil makes too light of the diagnosis, for among other affections of the tongue, psoriasis may be confounded with it. In doubtful cases he is in the habit of cauterizing gently with the nitrate of silver, and if after some days the ulceration undergoes a favourable modification, he feels certain that he has not to do with an epithelioma. When, after an operation, the case persists for ten years or more, we have had to do with a simple psoriasis, for epithelioma of the tongue always relapses within the space of two years. Prof. TRÉLAT observed that this communication of Prof. Verneuil's led to such useful and practical conclusions that he desired to adduce his own personal experience in support of it. In 1876, while drawing the attention of surgeons to the transformation of lingual psoriasis into epithelioma, he had insisted especially on the great advantage of operating early and on the efficacy of such operations. But patients and practitioners seem to do all they can to prevent these early and inoffensive operations, and only apply when the operation required has become extensive, and success nearly impossible. For the last five years Prof. Trélat has refused to perform these dangerous and useless operations. Of many patients who have consulted him when the epithelioma has been operable and success highly probable, he has never been able, by persuasion or alarms, to induce one to submit to it at that stage. The diagnosis should be made as early as possible, and in doubtful cases it is far better to perform an unnecessary operation than to leave the patient to the probability of an early death. All are agreed, in fact, as to the desirability of early operations, as must be the case when the results following these, as regards the prolongation of life, are contrasted with those which are observed in patients left to themselves. Prof. LE FORT, while agreeing that a cancrroid which is limited should at once be operated upon, believes that when the disease has greatly extended, relapse takes place so rapidly that it is better to abstain from operating in these cases. Prof. Verneuil, however, differed from this view, believing that palliative operations which relieve the patient's sufferings, and may prolong his life for awhile, are justifiable. They must, however, be on a large scale, when they may give very great relief, and render life supportable for some months. M. GUYON expressed himself with more reserve as to these palliative operations—so rapid is the relapse in such cases. M. LABBÉ maintained that it was the right and duty of the surgeon to intervene even in these desperate cases, but he must intervene boldly, and proceed far beyond the disease itself, however far this may have reached. He ties the two linguals, and removes the part by means of large scissors, which enable him to effect this much more exactly than by any other means.

Prof. VERNEUIL afterwards drew the attention of his colleagues to the importance of extensive operations for epithelioma as a security against relapse, referring especially to the numerous cases of total extirpation of the tongue published

by Billroth and Schepffer. By means of extensive operations great success has sometimes been obtained in apparently very desperate cases. It might be thought that in far less formidable cases even more success would be obtained; but this is far from being so. The operations are too parsimonious, and a prompt relapse occurs, the relapse always occurring at one of three points—the stump of the tongue, the soft parts of the floor of the mouth, or in the cervical glands; and the rapid and inexorable relapse takes place because the operation has been incomplete. The glands in the vicinity of the epithelioma require to be removed; and since R cher, of Bern, has removed even those that seemed unaffected, his operations have been much more successful than before.—*Med. Times and Gaz.*, Jan. 8, 1881.

Cases of Tracheotomy for Diphtheria in Children, Tumours of the Larynx, and Stenosis of the Larynx and Trachea.

Dr. KOERTE reports in the *Archiv f r Klinische Chirurgie*, Band xxv. Heft 4, that no fewer than 149 tracheotomies for diphtheria (membranous croup) were performed in the Bethanien Hospital during the epidemic of diphtheria in Berlin in the year 1878. Of these, 34 recovered, and 115 died. In the latter months of the year the epidemic increased, not only in extent but in malignancy, so that against 56 tracheotomies with 30.3 per cent. recoveries in the first half of the year, there were 93 tracheotomies with only 18.2 per cent. recoveries in the second half of the year. The epidemic was at its height in October, November, and December; and of 62 children tracheotomized during that time, only 12 per cent. recovered. The patients were generally admitted at an advanced stage of the disease. In many, the diphtheritic affection had extended from the throat to the nasal passages; in such cases the prognosis was most unfavourable. Many cases were associated with measles, or with scarlet fever, and were then especially liable to terminate fatally. The greatest mortality occurred in children under 3 years of age. In the first year of life no operation was performed; but in the second year there were 29 cases with 3 recoveries, and in the third year, 27 cases also with 3 recoveries. The percentage of recoveries increased with the age and capacity of resistance of the children. Dr. Koerte regards croup and diphtheria as different degrees of the same affection; and considers that they cannot be distinguished clinically, although they present certain pathological differences, the nature of which, however, he does not state. With regard to the after-treatment, inhalations of weak solutions of lactic acid, when membranes were present in the trachea, of common salt or alum, when there was much muco-purulent secretion, were administered every two or three hours. Internally, chlorate of potash, wine, and camphor, were given. No remedies were applied locally to the throat, except when the mucous membrane was deeply affected. With the exception of cleansing the canula, and clearing the trachea of membranes by mopping it out with a feather, Dr. Koerte does not regard the after-treatment as having had any appreciable influence upon the course of the disease. The relief that is obtained by inhalations is to be attributed to the steam rather than to the medicaments. He thinks that the results, fatal or otherwise, depend entirely upon the severity of the epidemic, and not upon the treatment; as, during the year 1877, when the epidemic was much less severe, with 40 per cent. of recoveries, and during the first half of 1878, with 30 per cent. of recoveries, the treatment was the same as that pursued when the epidemic was at its height, during the second half of the year 1878, with only 18 per cent. of recoveries. Most of the deaths occurred within three days of the operation, the cause of death being in some cases collapse, but in the majority dyspnoea from the extension of

the membranes into the smaller bronchial tubes, for the clearing of which inhalations appeared quite inoperative; indeed, in these cases, little seemed to be gained from the performance of tracheotomy. [It does not appear, however, that the suction method, strongly recommended by Mr. Parker, for removing membranes from the bronchi, was resorted to.] The deaths that occurred more than three days after the operation, were generally due to broncho-pneumonia and infection of the wound. When the wound became infected, disinfectants, and occasionally cauterizations with chloride of zinc, were resorted to. In one case, albumen appeared in the urine, and suppuration of the shoulder-joint occurred. The patient recovered after the shoulder-joint had been opened antiseptically. In another case, diphtheria occurred for the second time. Tracheotomy was performed on each occasion, and the patient recovered. Three cases of papilloma of the glottis are reported. Case 1. A child, aged 8 years, had for a year suffered from hoarseness, and sometimes dyspnoea. The larynx was almost filled by papillary masses growing from the vocal cords. Three months later, the larynx was opened by dividing the cricoid cartilage, crico-thyroid membrane, and the lower portion of the thyroid cartilage in the middle line; the growths were then removed with the scissors and a sharp spoon, and their bases cauterized. Cicatrization of the wound was followed by a slight narrowing of the larynx. Four months after the operation, bougeal dilators were used and Dupuis' tube introduced. The tracheal canula was removed, and the wound allowed to heal. The patient was discharged with the voice hoarse. Both vocal cords were involved in the cicatrization; they were shortened and their movements much impaired. Case 2. A woman, aged 30, had, for six months, had difficulty in breathing. Tracheotomy was performed. The right vocal cord was found normal, but the left was almost covered by a tumour with a broad base, which nearly occluded the lumen of the glottis. An operation was not allowed, and the patient was discharged, wearing a canula. Case 3. A woman, aged 47, had often suffered from hoarseness, and for six weeks had had great difficulty in breathing. Beneath the vocal cords, papillary masses were perceived narrowing the lumen of the larynx. Tracheotomy was performed, and shortly afterwards the larynx was opened, the masses removed with the scissors and knife, and the actual cautery applied to the base of the growths. The wound in the larynx and in the thyroid cartilage cicatrized; but the patient could not dispense with the canula. Dr. Koerte remarks that these three cases belong to that class of tumours which, from having a broad base and penetrating deeply in the mucous membrane, can only be removed by opening the larynx and seizing them from the front. It is very easy to open the larynx when the trachea has been incised; an incision of part of the thyroid cartilage being sometimes sufficient to make the glottis entirely accessible. Two patients were treated for syphilitic stenosis of the larynx, and one for stenosis of the trachea following diphtheria. In one of these patients, in whom the vocal cords were completely destroyed and speech was lost, an artificial vocal apparatus in the form of a tube provided with a vibrating tongue, was introduced into the larynx by the mouth. By means of this the patient was able to speak, but it failed to be of any permanent use, in consequence of the metal tongue becoming clogged by particles of food, which could not be prevented on account of the loss of the epiglottis, from entering the tube. In the case in which tracheotomy was performed for diphtheria, stenosis of the trachea occurred, in consequence of ingrowing granulations immediately above the tracheotomy wound, so that on the cessation of the diphtheria the canula could not be dispensed with. The granulations were removed by scraping; and dilatation of the constriction with various curved bougies completely relieved the patient. The tracheotomy wound was then allowed to heal. The stenosis re-

occurred in a month's time; tracheotomy was again performed, and the constriction successfully dilated as before. The wound again healed, but within a week or two asphyxia suddenly came on, the tracheotomy and dilatation were repeated a third time, and when the report was published, the patient was still under treatment.—*London Medical Record*, Jan. 15, 1881.

On Rapid Lithotrity.

In a paper entitled "On Lithotripsy and Poisoning by Chlorate of Potash," read before the Vienna Medical Society (published in full in the *Wiener Med. Wochenschrift*, 1880, Nos. 44 and 45), Prof. BILLROTH stated that he felt some embarrassment in bringing the subject before those who had had so much more experience in the operation than himself, inasmuch as it was not until the end of his fourteenth year of clinical practice that he had performed the operation at all. The results of his operations from 1867 until last year, when he adopted the new method, were as follows: Deducting two cases in which after the first sitting lithotomy was resorted to, there were 41 patients, for whom 120 sittings were required—these sittings, which at the commencement of his practice of the operation lasted from three to five minutes each, being soon afterwards extended to from ten to fifteen minutes. Of these 41 cases, 9 terminated fatally, or 7 per cent., reckoning each sitting as an operation. In 7 instances death followed on the first sitting, and in 2 on the second—resulting from periurethritis, pericystitis, diphtheria of the bladder, and pyæmia. The mean number of sittings for each stone was three and a half.

After adverting to the prolongation of the sitting which took place after the employment of anæsthetics became general, until at last Bigelow¹ astonished the world with his one-sitting operations, some of which lasted for three hours, Prof. Billroth states that he is able only to refer to six such cases in his own practice. These are of different import as regards judging of the feasibility of the method, in consequence of the very different size and hardness of the stones in the six cases. 1. In a man fifty-nine years of age, the operation lasted forty-three minutes, the stone consisting of uric acid and the urates, and measuring three centimetres in diameter. 2. A phosphatic stone in a patient aged forty-five measured two centimetres, the operation lasting twenty-three minutes. In the third and fourth cases, the stones, both of uric acid, were three and a half and four centimetres in diameter, the operations lasting fifty-five and one hundred and twenty minutes. The fifth case was that of a phosphatic calculus of two centimetres and a half, the operation lasting thirty minutes; and in the sixth case the operation lasted fifteen minutes, the calculus measuring one centimetre and a half. The diameters of the calculi are derived from measurements with the lithotrite, and it is not easy to judge of the size of the stone by means of the fragments that are discharged, it being generally much under-estimated. A tolerably near idea of its size may be attained by allowing all that is washed out of the bladder to pass through a calico filter—the fragments thus collected, pressed together, and compared with the diameter already obtained, furnishing an approximative representation of what the calculus must have been. But Prof. Billroth has often been struck with the small size of the stone as estimated by the fragments, giving rise at first to the belief that all these could not have come away. All the cases recovered, and in all the febrile reaction was insignificant. In the case which lasted two hours, shivering ensued, but this was only of a purely nervous character, such as frequently occurs in operations upon the bladder. Some of

¹ Am. Journ. Med. Sci., Jan. 1878.

the patients were dismissed cured in ten or twelve days. With respect to the possibility of fragments being left behind, all the cases four or five days after the operation have been carefully examined, and again this has been done three times with two days' interval, always with negative results. There can be no doubt that this operation is a great progress.

Prof. Billroth is convinced that, setting aside bad cases of cystitis and cystopyelitis, the unfavourable chances in all operations for stone do not arise from the danger of purulent inflammation or of hemorrhage from injury done to the mucous membrane, but from the large amount of ammonia, free or combined with carbonic acid, in the urine, and of the diphtheritico-septic character of the inflammation of the bladder that is set up in such cases. So dangerous is this ammoniacal fermentation that is set up, that Prof. Billroth believes lithotripsy in general, and especially lithotripsy at a single sitting, is contra-indicated unless some means of counteracting its influence can be employed. The danger of the generation of ammonia in the structures, and especially in the bladder, has been long since shown in Prof. Billroth's own experiments, as also in those of the late Gustav Simon and Menzel. The question is, therefore, How is the formation of ammonia in the urine to be prevented? Prof. Billroth has found the alkaline condition of the urine in paralyzed persons capable of removal by repeated injections of muriatic acid; but as most patients object to the frequent introduction of the catheter for this purpose, he tried the daily administration of a drachm of phosphoric acid: and the urine can in this way be rendered acid; but after a few days such acidity of the stomach was produced that it had to be given up. The same may be said of muriatic and nitric acids. Under these means the urine was changed in appearance from intense yellow to the clearness of water, as if the acid had exerted an influence on the colouring matter. Patients who were suffering from cystitis and pyelitis found acids aggravate their suffering. In general, when the carbonate of ammonia disappears from the urine, the patient obtains great alleviation of suffering, the vomiting, fever, and penetrating smell of the urine disappearing, and the introduction of the catheter being much better borne. The chlorate of potash in a five per cent. solution, five grammes being taken in the course of the day, was next tried, and acted more promptly on the urine than did the acid. Prof. Billroth had hitherto believed that the statements which were published concerning its occasional poisonous effects had been exaggerated; for, when these related to diphtheritic children, he called to mind how many of such he had seen die from paralysis of the heart, without having taken any of the chlorate. He has, however, now met with a case in which he is convinced that death resulted from the use of this remedy. To a man aged sixty-four, who was admitted with urinary derangements of fifteen years' standing, the urine containing ammonia, much pus, and blood, the chlorate was ordered for three days in doses of five grammes ($77\frac{1}{2}$ grs.) per diem, the bladder being also washed out with diluted muriatic acid. The urine was acid on the second day, and on the third was clear, so that lithotripsy, which lasted fifteen minutes, was then performed. After the operation the catheter had to be introduced several times, and the chlorate was continued. On the evening of the second day, when lying apparently asleep, he was found dead. At the autopsy the heart and large vessels were found filled with fluid blood of a very peculiar brown colour. This colour was quite remarkable; and Prof. Ludwig expressed the opinion that it was highly probable that the man died poisoned by the chlorate, although no trace of it was discoverable in the blood. After the death it was ascertained that fifteen instead of five grammes had been given daily, so that the patient had thus taken altogether from forty to forty-five grammes (620 to 700 grs.).

At the discussion which followed the reading of the paper (*Allg. Wien. Med.*

Zeit., Nos. 44 and 45), Prof. DITTEL, after referring to two cases in which Bigelow's operation was performed by Sir H. Thompson at Vienna, and eight others which he had operated upon himself, spoke highly in favour of the new procedure. The aspiration which was employed did not cause the hemorrhage of the bladder that was feared by some, while it enabled us to be assured whether there were still fragments in the bladder or not. This operation also in many cases may prevent the occurrence of a cystitis. A patient may have a stone in the bladder for years without excessive suffering; but no sooner is he lithotritized than several sharp-pointed fragments are suddenly produced, and cystitis is at once set up. But by this operation, in which the stone is completely crushed and removed at a sitting, he is preserved from this occurrence; while impactment of fragments in the urethra, which sometimes gives great trouble to the surgeon, and may even give rise to fatal results, is also avoided. So also for operations on the paralytic bladder, this is the only possible method. The number of cases has been as yet too small to allow of a final judgment being passed as to the amount of reaction produced, but, generally speaking, it has been not greater than under other modes of operating. Taken altogether, this new method can only be regarded as a very considerable progress.

With respect to the alkaliescent condition of the urine, Dr. ULTMANN observed that this may be caused either by fixed alkalies or by the carbonate of ammonia. In the former case, as often met with in diseases of the nervous system, it is secreted from the kidney in this alkaline condition; and here the internal administration of acids is of utility, especially carbonic acid, which transforms the amorphous and crystalline lime and magnesia salts of the urinary sediments into easily soluble bicarbonates. It is entirely otherwise when the alkaliescence of the urine is brought about by the fermentation of the urea, an abnormal condition of the mucous membrane of the bladder, or the presence of micro-organisms. Here the change takes place in the bladder itself, the urine being secreted acid or normal in the kidney, and becoming alkaliescent only in the bladder. When the urine has been for some time alkalized by carbonate of ammonia, we may be certain that the bladder itself or the parenchyma of the prostate has undergone change. It is in cases in which an incomplete discharge of the urine takes place that this ammoniacal condition of the urine occurs, and it is much more effectually treated by local applications than by the internal administration of acids. Prof. Dittel observed that in many cases of obstinate alkaliescent urine in old vesical catarrh the bladder exhibits hundreds of diverticula, which resemble cavities of abscesses, with narrow orifices, and in such cases it is quite impossible to wash the bladder clean out so as to remove all the alkaliescent urine. Prof. Drasche stated that as the result of numerous experiments he had found that two grammes of salicylic acid with glycerine and alcohol, or three grammes of salicylate of soda, may be given with advantage in vesical catarrh, these substances preventing the decomposition of the urine. They cannot, however, be given in these doses for a long time, and small doses are of no use; but they furnish a medicinal substances that proves efficacious for a time in affections of the bladder attended with rapid fermentation of the urine.

In reference to the influence of chlorate of potash taken internally, Dr. MARAZEK stated that when he was clinical assistant in the department for syphilis he had administered the chlorate in cases of cystitis and cysto-pyelitis arising from gonorrhœa. Altogether there were forty hospital and thirty out-patients who took daily five grammes, dissolved in 100 grammes of water with two drachms of cherry-laurel water added to it. Most of these persons took it for twelve to fourteen days, and several for a longer time, so that in most cases as many as sixty grammes were taken. Acid reaction commenced in the urine from

the second day, and the triple phosphate disappeared from the sediment, which became diminished in quantity and less viscid. The quantity of the urine remained the same, but the urgency for passing it was diminished. When it contained blood at the time the chlorate was given, the quantity of this was increased. No ill consequences resulted from the use of the chlorate, in spite of the fact that most of the patients were in a bad condition of health, and some of them the subjects of tubercle and syphilis. The chlorate must therefore be regarded as a valuable aid in treating this form of cystitis and cysto-pyelitis. Of the forty cases treated in hospital, twenty-eight completely recovered, and several others were much improved.

Dr. ENGLISH observed that he had often administered the chlorate in affections of the bladder, and had found it useful in acute cystitis, but in chronic and obstinate cases it proved of no advantage. He gives from five to seven grammes daily during a month, and has never met with any ill consequence resulting from its use.

Prof. LUDWIG, referring to Prof. Billroth's fatal case of poisoning with chlorate of potash, stated that the blood, the contents of the stomach, and the urine were examined. The urine was turbid, with an acid reaction and very abundant sediment; it was albuminous, and contained a few blood corpuscles and granular cylinders. The blood had undergone great change, leaving the hæmatin free; but neither in it, in the contents of the stomach, nor in the urine, was any of the chlorate perceptible. This, therefore, had been completely reduced in the economy, and had passed into the condition of chloride of potassium—a remarkable circumstance, quite in contradiction to the views hitherto held by chemists. Binz was the first to show that organic substances (as yeast, blood, fibrin), when passing into a state of putrefaction, may decompose chlorate of potash; and it is now no longer doubtful that the chlorate, under certain circumstances, that we are at present ignorant of, may become wholly or in great part reduced within the body. As regards the mischievous influence of this, it would seem to be twofold. On the one hand, it operates like arsenic or phosphorus, the blood corpuscles being destroyed during the conversion of the chlorate into chloride of potassium. Secondly, it is decomposed into its base and acid by the weak acid urine in the kidneys, and the violent effects of the chloric acid have full play. The examples of strong acids being separated from their combinations by weaker acids are on the increase, so that it is not surprising that the weak acid urine is able to decompose the chlorate of potash.

Prof. HOFFMANN observed that as the effects of chlorate of potash on the blood can be demonstrated in a test-glass, it is only to be expected that the same changes would take place in the circulating blood.—*Med. Times and Gaz.*, Jan. 15, 1881.

On the Radical Cure of Varicocele.

At a meeting of the Royal Medical and Chirurgical Society (*Lancet*, Jan. 15, 1881), Mr. HENRY LEE read a paper on this subject, of which the following is an abstract.

The operation advocated in this paper is that of removing a portion of the anterior skin of the scrotum, and subsequently dividing the veins which are to be obliterated. All the steps of the operation are conducted through the wound made by the removal of the skin. The veins are compressed temporarily, so as to prevent hemorrhage, and then divided. The cut orifices of the veins are sealed with the black hot cautery, which if of proper temperature, is allowed to adhere to them for five or six seconds. The ligatures and needles used in compression are then removed, and the edges of the skin brought into apposition from below upward by carbolized sutures. Union by first intention takes place more

or less perfectly, and the patient is allowed to follow his usual avocations in three or four days.

Mr. PEARCE GOULD described an operation that he had performed for the radical cure of varicocele during the last two and a half years. It consisted in passing a loop of platinum wire round the spermatic veins subcutaneously, and then connecting it with a galvanic éraseur, and making it burn its way through the veins. In all he had performed it eleven times, two of the cases being incomplete, the other nine having resulted in cure without accident. The advantages he claimed for it were its safety, simplicity, painlessness, and efficiency, and the fact that the operation is limited to the diseased parts. He considered Mr. Lee's operation as more complicated, and held that the wound of the scrotum was liable to œdema, and even suppuration; and being closed by the continuous suture, there was no outlet for any effused serum. The removal of part of the scrotum has been shown to be ineffectual for the cure of varicocele, and he doubted if it were needful if the occlusion of the veins were satisfactorily secured. He thought it hardly safe to allow patients to get up and move about so soon as three or four days after such operations on veins, but preferred to wait until the clots were firmly adherent, and the divided ends of the vessels securely closed.

Mr. LEE, in reply, said, that, although he had now employed the actual cautery in a very large number of cases, he had never had a case of septic poisoning following its use. He attributed this to the complete closure of the veins—the small as well as the large—effected by it. It also effectually sealed the arteries; and if the operation is fairly done there is no oozing whatever. The wounds heal without any sloughing. His object in interfering with the scrotum was to prevent any return of the varicocele.

Case of Tying the Left Common Carotid Artery after Tonsillotomy.

In this case (*Hygieia*, Band xlii. April, 1880; *Schmidt's Jahrb.*, Band clxxxvii. No. 8, 1880) extirpation of the left tonsil had been performed by LIDÉN in the usual manner for excessive hypertrophy. The hemorrhage was not very great after the operation, but it did not cease after gargling with cold water, and became more and more abundant in spite of preventive means. After cauterization with lunar caustic, and application of perchloride of iron, it stopped for an hour, then recommenced, the clots becoming larger and more frequent. There was no arterial bleeding. Bladders of ice laid on the neck, and ice in the mouth, diminished the hemorrhage for a time; but afterwards it came on afresh and more violently. The patient's strength was failing, the pulse 130, weak and irregular. Three hours after the tonsillotomy, the common carotid artery was tied with carbolized silk, and immediately afterwards the bleeding from the mouth stopped. There was no pain felt on tying the carotid, nor pain in the head afterwards. Recovery was very slow, the patient not leaving her bed for three weeks. She had always been weak and chlorotic; and had always experienced strong pulsation of the left side of the neck, and very rapid action of the heart. There were no signs of hemophilia either in the patient or in her family. Dr. Lidén thinks that an abnormal ramification of the vessels was the cause of the bleeding. [A very simple method of arresting hemorrhage after excision of the tonsils, and one that does not seem so often resorted to as it deserves, is by pressure with a pad of lint on the end of a short stick.—*Rep.*—*London Med. Record*, Jan. 15, 1881.]

Dislocation of the Spine.

In the July number of the *Revue Mensuelle*, MM. A. POUSSON and F. LALESQUE give a detailed report of three cases of dislocation of the spine, observed

in the Saint André Hospital at Bordeaux; and to this report they attach an interesting review, with regard both to clinical and to physiological data, of the effects produced on the spinal cord through displacement of the bodies of the vertebrae. The first case, the subject of which was a male aged forty, was one of fracture of the laminae of the eleventh dorsal vertebra with consecutive dislocation of this in front of the twelfth; contusion of the cord; ascending myelitis; and death on the eleventh day. In the second and third cases, the cervical portion was the seat of injury. One was an instance of partial dislocation of the fifth cervical vertebra, causing death on the third day, in a male aged twenty-four: and in the third case, which terminated fatally within thirty-six hours, there was luxation forwards of the fourth cervical vertebra and rupture of its inferior cartilaginous disk. The patient in the last case was a man aged thirty-eight.

These cases present no special point of interest with regard to the character of the injury. The chief value of the contribution is due to the very rigorous analysis of the pathological facts made by the authors, with the view of testing the results that have been attained by experimental physiologists as to the functions of the spinal cord. With the exception of acute pain at a fixed point of the spine, which was noted in all three cases, and of mobility of the eleventh dorsal spinous process in the first case, the local signs were very obscure. In the third case, there was not any appreciable distortion of the spine at the supposed seat of injury, and the movements of the neck were preserved. The lesion in each of the cases of injury to the cervical region was beyond the reach of a finger introduced into the pharynx. In severe injury to the spine and cord, the activity of the brain may be suspended for a time, as one of the results of the general disturbance known as shock. In two of the above cases there was temporary loss of consciousness, and in the third case an inability to articulate. In each of the three cases, there was motor paralysis in the region supplied with nerves by the segment of the cord below the seat of injury. In the first case, as the seat of injury was near the origin of the first pair of lumbar nerves, the parts supplied by the lumbar and sacral plexus were paralyzed, and voluntary motion of the lower extremities was abolished. In the other two cases, the brachial plexus had been cut off from the upper part of the cord, and therefore the upper extremities as well as the inferior were paralyzed. In the second case, the motor paralysis of the upper extremities was not complete, and the loss of movement affected only certain groups of muscles, in consequence, probably, of integrity of certain channels of conduction in the midst of the disorganized parts. There was, in the third case, complete and immediate paralysis of motion. This seems to be exceptional; for, according to Gurlt, in cases of dislocation below the third cervical vertebra, complete and immediate motor paralysis has rarely been observed.

In cases of injury to the spinal cord, the area of lost sensibility usually corresponds very closely to that of motor paralysis. This might be expected, from the fact that the anterior and posterior roots emerge from the cord at the same level. In the first case, there was anaesthesia of the lower extremities and of the abdominal wall as high as the umbilicus. In the second and third cases, the area on the trunk of anaesthesia was limited by a line drawn through both nipples. There was loss of sensibility in the upper limbs in the third case, but not in the second case. Here there was persistence of sensibility, which, together with freedom from motor paralysis in certain groups of muscles, indicated that there was but incomplete disorganization of the cord at the seat of injury. When all kinds of sensibility—to pain, touch, and temperature—are abolished, as was made out in the first and third cases, it may be concluded that the whole thickness of the spinal cord has been involved in the injury. Marked hyperaesthesia, with intense

pain just beyond the paralyzed region, was noted in the second and third cases. In the first case, there was exaggerated reflex motion in the lower extremities. The phenomena observed in the other two cases were not in accordance with the theory that, whenever a portion of the spine is cut off from the encephalon, the excito-motor power of this portion, provided it remain sound and intact, becomes intensified. In the second case, not the least movement of the lower extremities could be excited by active stimulation of the integument. In the third case, the extensor muscles of the lower limbs contracted when the soles were touched, but over all the other paralyzed parts the excito-motor action of the medullary exit remained indifferent to every kind of excitation. In these two cases, however, death occurred early and before the effects of shock had passed off. Besides, in each case the lower portion of the spine below the chief seat of injury was not quite sound, and hence the conditions of experimental physiology were not fulfilled. Contraction and immobility of the pupils were noticed in the second and third cases, in which the lesion of the cord existed at the lower part of the cervical region. Neither palpebral stenosis nor injection of the conjunctiva was observed in any of the cases.

The penis was found to be turgescient in all three cases, and in one case, the third, there was marked erection. Voluntary micturition was abolished in every case, and it was found necessary to relieve the bladder by catheterism. The urine remained normal as to quantity; and in one case only, the first, did the physical and chemical characters become altered. In the other two cases, however, death occurred very soon after the date of injury. Changes in the quality of urine, which take place in cases of injury to the spine, though they come on suddenly and progress with much rapidity, do not usually occur until after an interval of some days. In the above case the excretion became turbid and alkaline, and had an ammoniacal odour, for the first time, on the fourth day; on the fifth day it was purulent.

Tympanites was observed in all the cases, and was excessive in the second, so as to interfere with respiration. This condition is due, not only to paralysis of the muscular fibres of the intestine, but also to failure of contractility of the abdominal muscles, which then offer no effective resistance to gaseous distension of the intestinal canal. Intestinal paralysis is usually manifested also by absence of stools. Fecal incontinence, in cases of injury or disease of the spine, is to be regarded as a very unfavourable symptom. In the second case, involuntary discharge of fecal matter commenced a few hours before death.

In all the cases the breathing was diaphragmatic, and both the thorax and the abdominal wall moved but passively and under the influence of the play of the diaphragm. The seat of the injury to the spinal cord accorded perfectly, in the second and third cases, with the symptoms that were observed. The lesion existing at the level of the fourth and fifth cervical vertebræ paralyzed all the muscles of respiration save the diaphragm, supplied by the phrenic nerve emerging above the fourth cervical vertebra. In the first case, another reason must be found to explain the modification in the normal type of respiration; it is to be attributed, on the one hand, to paralysis of the abdominal muscles, and, on the other hand, to violent pain experienced by the patient in the right hypochondrium. In pleurodynia and pleurisy the patient, in order to obtain relief, instinctively keeps at rest the painful side of the chest.

In cases of serious injury of the spinal cord there is paralysis of the vaso-motor nerves, determining a diminution of the arterial pressure, and giving rise to certain modifications in the character of the pulse. These changes were observed in each of the cases reported by MM. Pousson and Lalesque, and in the second case

particularly remarkable changes in the pulse were made out on the second day, and when the effects of shock had passed off. It was noted that the radial pulse was strong, and that with each blood-wave there was a forcible impulse, but that at the same time the vessel was compressible. This impulse was still more marked in the larger arteries, as the femoral and the abdominal aorta. The sensation of a strong pulse is due to sudden variation of the arterial pressure in the vessel which is under the surgeon's finger. There is a feeble pressure in consequence of the vaso-motor paralysis, which, at the periphery, allows a ready flow of the blood from the arterial into the venous system; and this condition of feeble pressure passes suddenly into a condition of forcible pressure at the moment of the ventricular systole. The sphygmographic tracing presents, with pulse-modifications of this kind, a very high and vertically ascending line, and a concave and prolonged descending line. With regard to the number of cardiac beats, no deduction could be drawn from these cases. According to M. Marey, the movements of the heart in a given time are the more frequent, the less obstruction there is to overcome in the accomplishing of the ventricular systole. In these cases, therefore, as there was certainly diminution of the arterial pressure, and consequently a more ready flow of the blood-stream, an increase in the number of cardiac pulsations would have been expected. But in the first case only was there an acceleration of the pulse (112 to the minute): in the other two cases the pulse was 88 and 60. These facts, however, it is pointed out, do not really invalidate the law of Marey, since, in the second and third cases, the spinal lesion had involved the cervical enlargement and the region from which are derived the accelerator nerves of the heart. The authors failed to make out any precise results as to the temperature in these cases of spinal injury, in consequence of the disturbing influence of shock and consecutive inflammation. In conclusion, it is reported that, beyond some sloughing over the sacral region, in the first case, no indications of any trophic disturbance were observed.—*London Med. Record*, Jan. 15, 1881.

Midwifery and Gynæcology.

Cystic Degeneration of the Chorion with a Living Fœtus.

It has been maintained with much plausibility that cystic degeneration of the chorion results from the death of the embryo. A case, therefore, which completely negatives this view is both of interest and importance. Such a case has been put on record by Dr. C. BREUS (*Wiener Medizinische Wochenschrift*, No. 36, 1880). It occurred in the private practice of Professor Braun. It was the patient's first pregnancy after ten years' marriage. Gestation went on without any unfavourable symptom until the fifth month, when metrorrhagia came on, so severe as to oblige the patient to keep her bed. A week afterwards labour-pains began. The uterus then reached to the umbilicus. The fetal heart could not be made out, but fetal movements were perceptible. The child and placenta were expelled naturally and easily. The child corresponded in development to five months' pregnancy; it weighed 440 grammes (1 lb. 1½ oz.), and lived for three hours. It presented no abnormality, and death appeared to take place simply from its having been prematurely born. The placenta and membranes weighed 320 grammes (10 oz.). The placenta showed in parts clusters of thin-walled vesicles of different sizes, the largest being as big as a hen's egg; at other parts it presented the general appearance of healthful placental tissue, but nevertheless, on close examination, vesicles of the size of a pin's head or a hemp-seed

could be seen in it. Microscopical examination showed, even in the least altered placental tufts, a pronounced increase of embryonic connective tissue with abundant intercellular substance. That this disease of the placenta did not lead to the death of the child, the author explains by supposing that it did not begin till later than usual, and that sufficient of the placenta was left in a tolerably healthy state to allow of the nutrition of the fœtus. He believes that had not the child been expelled prematurely, the progress of the disease must have led to its intra-uterine death.—*Med. Times and Gazette*, Dec. 25, 1880.

Induction of Abortion as a Therapeutic Measure.

The discussion of a paper by Dr. PRIESTLEY, on the Induction of Abortion as a Therapeutic Measure, at the last meeting of the Obstetrical Society of London, leads us to offer some remarks thereon. Dr. Priestley's paper was, of course, an ably written one. But it did not attempt to extend the boundaries of knowledge: it aimed rather at a temperate judicial summing-up of the conditions which may justify the artificial termination of pregnancy at an early stage. As to the soundness of the conclusions set forth, little doubt could have been felt. But no new facts were brought forward, either in the paper or in the debate. The *raison d'être* of the paper was, not that the author had any fresh information to communicate, but, to use his own words, because "the indications for the induction of abortion . . . had never been laid down with sufficient precision in this country." And the debate also was a somewhat barren one, the only speaker who recognized the wide bearings at issue being Dr. Barnes.

Dr. Priestley set forth seven sets of conditions in which he considered artificial abortion justifiable. In two of them the objection to it is what is called a "moral" one. These are (1) "pelvic deformity so great as to preclude the birth of a living child," and (2) "narrowing of the genital canal by tumours, cicatrices, or cancer, so as to prevent the passage of a viable child." The existence of these conditions is seldom found out until the end of the first pregnancy, when a dangerous operation is needed to effect delivery. Then, if the patient become pregnant again, the question presents itself, "Is it not right to empty her uterus before its burden has got too big to pass through the narrow strait which is its sole communication with the outer world?" The so-called "moral" objection is, that the woman knew what would be the natural result of a second pregnancy, and ought not to have incurred the possibility of it; she having done so, the medical man ought not to destroy a child to save her from the penalty to which she has voluntarily submitted herself. We agree entirely with Dr. Barnes in thinking this doctrine a barbarous one. "Who art thou that judgest another?" is the text we would commend to the consideration of those who hold that the turpitude of a poor deformed wife's offence in becoming pregnant after she is aware of her deformity, is only to be expiated by her running a risk of death considerably greater than if she had been condemned to capital punishment in the Old Bailey dock. In these cases the woman is not a free agent; and, as Dr. Barnes said, if pregnancy under such circumstances be really a crime calling for punishment at the hands of the medical man, there is a measure, at once penalty and preventive (which need not be mentioned), and which would fall with more justice upon the other side. The life of a healthy young wife and mother ought to outweigh in the balance that of any number of immature fœtuses.

In the second set of conditions the indications for artificial abortion stand upon different grounds. These include diseases which are believed to be so aggravated by the coexistence of pregnancy as to endanger life. Dr. Priestley specified (3)

obstinate vomiting of pregnancy; (4) eclampsia; (5) irreducible retroversion or retroflexion, endangering life; (6) hemorrhage; and a seventh class included the remainder.

The point which seemed to us too much overlooked, both in the paper and in the discussion (except by Dr. Barnes), was this: that it is not yet a question of this or that symptom, or collection of symptoms, calling for the termination of pregnancy. It is first and chiefly a question concerning the *natural history of disease*. We want to know what is the natural history of the vomiting of pregnancy, of eclampsia, etc., if the pregnancy be let alone; and then, what is the effect of abortion upon them. Till there is some certainty upon these points, nothing definite can be said upon the indications which denote, in each case, the necessity of abortion. Take, for instance, the vomiting of pregnancy. We know that it is usual for this to be troublesome during the first three or fourth months of pregnancy, and that then it generally gets better. But this typical course is widely departed from in particular instances, and we know hardly anything of the conditions which lead to such variations. But until we do, it is useless to dogmatize upon the effect of remedies. One speaker mentioned cases in which, after various modes of treatment had been tried without success, and abortion was thought necessary, the use of a favourite remedy of his own was followed by cessation of the sickness. We have little doubt that each man in the room could have also narrated cases in which his own pet drug had done good after others had failed. The explanation is, that probably in most such cases the vomiting would have ceased whether the medicine had been given or not; and the remedy which the patient happened to be taking, when the sickness naturally stopped, was given the credit of the cure. The induction of abortion has this advantage over all other remedies, that by it cure is certain. Sickness solely dependent upon pregnancy must cease when the pregnancy ceases. Dr. Priestley's cautious indications for abortion in these cases practically amounted to this: that if the patient be dying from incessant vomiting, abortion should be induced. We rather agree, however, with Dr. Barnes, that if it is to be done at all, it should be done earlier than this. But the point we want to insist on is this: that the indications for inducing abortion in cases of intractable vomiting of pregnancy cannot be formulated with any precision until the natural history of such vomiting is better known.

The induction of abortion in eclampsia does not stand upon such sure ground as in the case just mentioned; for it is not at all certain that in uræmic convulsions occurring in the early months of pregnancy, the evacuation of the uterus will benefit the patient. In retroversion of the gravid uterus there is the same uncertainty as to the need of abortion. There is no doubt not only that a retroverted pregnant uterus may right itself (and generally does, if the bladder be kept empty), but that even if it do not, pregnancy may go on as usual, and delivery be effected by the natural efforts. Dr. Priestley did not specify what are the cases in which retroversion of the gravid uterus may endanger life if abortion be not induced. We know that when these cases end fatally, it is usually through the bladder and kidney changes which are caused by the retention of urine—cystitis, pyelitis, rupture of bladder, sloughing of its mucous membrane, etc.—diseases which can be prevented by careful attention to the bladder, and which, when once set up, would probably not be much modified by the presence or absence of pregnancy. Dr. Priestley stated that he did not regard the mere fact that the displacement was irreducible as sufficient reason for inducing abortion. We may add, with reference to the cases that have been recorded in which the uterine contents were discharged by ulceration of its wall, that very competent critics have thrown doubt on the accuracy of the diagnosis in these

rare instances. The other indication which Dr. Priestley specified—viz., (6) hemorrhage—requires no comment.

The author's last group (7) was a very general one: "in certain other diseases where the complication of pregnancy is undoubtedly endangering life." Heart-disease, chorea, and insanity, were the conditions chiefly dwelt upon in the discussion. It is in these cases that our present contention applies with the greatest force. In the conditions named there are not yet materials for formulating the indications for artificial abortion. This question cannot possibly be settled until the more fundamental one has been elucidated: What is the effect of pregnancy upon the course of these diseases? It was Dr. Priestley's opinion that gestation has probably little influence on the progress of the malady; and therefore his practical advice was to "treat the morbid condition, and let the pregnancy take care of itself." Dr. Barnes took the opposite side, and went so far as to say that the disease depended upon the pregnancy. Whether in this statement he be correct or not, there can be no doubt that the point of view from which he treated the question is the only one which at present can help us to sound rules of practice. Little has been done, or rather little definite is known, as to the effect of pregnancy upon chorea or insanity. Cases have been recorded in which chorea or insanity coexisting with pregnancy ceased when the pregnancy was put a stop to; but others have been seen in which the artificial interference with gestation only made the patient worse. In heart-disease, thanks to the laborious and able work of Dr. Angus Macdonald, we are on surer ground; but even here much remains to be done.

We will conclude these remarks by repeating again the principle which we wish remembered in this connection; viz., that the question of the artificial induction of abortion for the relief or cure of morbid conditions of other parts is essentially one of the natural history of disease. We want to know more of the effect of pregnancy upon disease; and until we do, no scientific indications for the induction of abortion under such circumstances can exist.—*Med. Times and Gazette*, Jan. 8, 1881.

Treatment of Mammary Abscess.

Dr. HIRAM CORSON, of Conshohocken, Pa., strongly urges (*Am. Jour. Obstetrics*, Jan. 1881) the local use of ice in the treatment of mammary abscess. He puts the ice into a bladder with just enough water to form a water cushion that will adapt itself to the inflamed part.

Narrowness of the Uterine Orifices in relation to Dysmenorrhœa and Sterility.

In an interesting article on stenosis of the external os uteri (*Annales de Gynecologie*, Dec. 1880), Professor PAJOT relates three cases in which an extremely small os uteri was present, with the usual dysmenorrhœa and sterility in young married women. In all three cases the os uteri was gradually dilated by means of an ordinary uterine dilator. Pregnancy ensued in all three cases, although in the first case the os uteri was invisible to the naked eye, and almost invisible in the second case. Professor Pajot is opposed to incision of the external os uteri as a means of removing the stenosis, and prefers gradual dilatation. He draws the following conclusions. In the same way that any obstacle to the facile flow of menstrual blood may cause dysmenorrhœa, stenosis of the external orifice may cause it. When stenosis appears to be the cause, enlargement of the orifice is indispensable. The opening of the uterine orifices by cutting instruments exposes the patient to serious dangers—septicæmia, pelvic peritonitis, and metritis, and even to death. Sponge and laminaria tents also frequently lead to

serious complications, such as perimetritis and septicæmia. Dilatation, carried out by means of graduated dilators, for several minutes at each sitting, is, in the absence of proof to the contrary, absolutely free from danger. In cases of sterility depending on stenosis, it is only necessary to dilate the external os uteri; and where this has to be done, transverse dilatation appears to be more favourable to subsequent impregnation than circular dilatation.—*London Med. Record*, Jan. 15, 1881.

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On the Operative Treatment of Cancer of the Cervix Complicating Pregnancy.

The above is the subject of a contribution in the *Zeitschrift für Geburtshülfe und Gynäkologie*, bd. v. s. 158, by Dr. RICHARD FROMMEL of Berlin. His observations are suggested by two cases of the complication, the histories of which are given at some length. The cases were severe, the affection having dated back to a period before conception in both. In the first, as natural delivery was plainly impossible, Cæsarean section was performed with antiseptic precautions. A deeply asphyxiated child was delivered, which, however, came round and lived for three months. The placenta and membranes, being adherent, had to be removed, and a drainage-tube was then introduced through the vagina and cervix. The uterine wound was closed by seven deep and several superficial silk sutures. The patient died in two days. On post-mortem examination it was found that the silk stitches had all come loose. The carcinoma was very extensive, affecting the cervix to the os internum, the parametria on the right side, the bladder and upper part of the vagina, and completely filling the entrance of the true pelvis. In addition there was hemorrhagic peritonitis, interstitial Bright, and commencing endocarditis. The second case came under treatment five days after the waters had come away. The child was then dead, and the presentation a cross one. That being so, an attempt was made to remove manually the degenerated tissue so as to open a channel for the extraction of the child. This was effected without injury to adjoining organs or any bleeding worthy of the name. A foot was pulled down, and the dead, slightly macerated, full-grown child delivered. After this there was only very slight bleeding; the placenta was removed by expression, and the uterus contracted fairly. The operation was well borne by the patient, and she continued tolerably well for a few days. She suffered greatly from pain, for which large doses of narcotics were administered, and lived for a fortnight, during which time rapid advance of the carcinoma was observed. No post-mortem could be obtained. The author then proceeds to discuss the question when and by what sort of operation carcinoma, when complicating pregnancy, ought to be dealt with. This he holds depends chiefly upon the degree of advance of disease. Provided the case be seen at a time when the whole diseased tissue can be removed, the author recommends this to be done irrespective of the stage of pregnancy or of the risk of abortion resulting. He maintains, however, that the latter is not likely. But if the extent of the disease is such as to render its complete removal impossible, Dr. Frommel recommends Cæsarean section with antiseptic precautions, in the interests of the child chiefly, provided the fœtus is alive and viable. But if the child be dead, he would follow the plan of treatment adopted in his second case. In discussing the question of diagnosis of early cancer, the author considers Spiegelberg's view in regard to the fixation of the mucous membrane to the subjacent tissues as doubtful, since Ruge and Veit have shown that carcinoma of the cervix has only seldom those ingrowths of epithelial tissue assumed by Spiegelberg to be present in all cases. He comes to the conclusion that accuracy of diagnosis can only be obtained by removing a small portion of diseased tissue and

subjecting it to microscopic examination. The operative interference for complete removal he recommends is the wedge-shaped excision of both lips of the os after Simon's method.—*Edinburgh Med. Journal*, Dec. 1880.

—

Cancer of the Uterus in the Seventeenth Year of Life.

That cancer of the uterus is exceedingly rare in early life every one knows. A few cases under the age of twenty have been recorded, but none in detail. Those that occur in old authors have, indeed, been rejected by later and more critical writers as instances of mistaken diagnosis; and a case of so rare a kind, mentioned without confirmatory details, must always be open to this suspicion. A case, therefore, that occurred in the clinique of Professor Späth, and is reported by Schauta in the *Wiener Medizinische Wochenschrift* (Nos. 37 and 38, 1880), is of much interest. The patient was a weak and delicate girl, but no inherited tendency to carcinoma could be made out. She began to menstruate shortly after the completion of her fifteenth year, and the function was regularly performed without pain, but the flow was always abundant. In October, 1878 (the patient having completed her sixteenth year in December, 1877), a sanious watery discharge began to appear, accompanied with pain in the lower abdomen, so severe as to oblige her to keep her bed. In November an attack of profuse hemorrhage led her to seek medical advice. On examination, a rounded tumour, of the size of a walnut, uneven on the surface, was felt in the vagina. It seemed as if it grew from within the uterus; its pedicle passed through the os uteri. From its consistence, and from its being covered with adherent fibrin, it was at first suspected to be a placental polypus which had followed an early abortion. The uterus could not be made out to be enlarged, and the patient denied all possibility of a miscarriage. An attempt was made to remove the tumour with a Simon's sharp spoon; but the stalk was found too strong to admit this, and it was therefore cut away with curved scissors. It was found to grow from the right half of the vaginal portion of cervix; and on section and on microscopic examination was found to have the characters of malignant disease. The removal of the new growth was completed with a Sims's knife. The patient recovered, and remained well till January, 1879. Then some small nodules, at first of the size of millet-seeds, but subsequently getting larger, were discovered in the neighbourhood of the cicatrix. They were removed with the knife; but after this others appeared, which were destroyed with Paquelin's cautery. At the end of March a tumour as large as an egg was felt in the right parametrium. It was rounded, and not connected with the uterus. It grew so fast that at the end of April it reached to the umbilicus and filled both iliac regions. On May 12 bits of tissue microscopically shown to be malignant in character were discharged in the urine, proving that the bladder was now involved. On May 15 the patient died. The autopsy was made by Dr. Chiari. A mass as big as a man's head was found in the pelvis—the lower part of the ileum, the caecum, lower part of ascending colon, and sigmoid being adherent to the mass. The uterus was small, and pushed to the left. The posterior wall of bladder and right vaginal fornix had been destroyed by the growth. Secondary growths were present in the lumbar lymphatic glands and in the lungs. The growth was very vascular, soft, grayish-red in colour, and exuding a milky juice on section. It was examined microscopically by Prof. Heschl. His report concerning the growth was, that it was a malignant adenoma; that no definite distinction could be drawn between a growth of this kind and a true cancer, and it must be looked upon as a transition form to the latter disease.—*Med. Times and Gazette*, Jan. 1, 1881.

MEDICAL NEWS.

SHORT-SIGHT IN RELATION TO EDUCATION.

IN an address recently delivered to the Birmingham Teachers' Association, Dr. Priestly Smith has given the results of the examination of the eyes of school children and college students, with reference to the existence and increase of myopia. 1636 pupils of the board schools and 357 students of the colleges in which young men and women are trained as teachers were examined. The ages of the former ranged from seven to thirteen, and of the latter from eighteen to twenty-three. Five per cent. of the school children were found to be short-sighted, and twenty per cent. of the college students. Though the number of the older subjects is not large enough to make the statistics at all conclusive as to the effect of education upon myopia, Dr. Smith's observations, so far as they go, confirm the results of previous more extended examinations. Ware, in a paper read before the Royal Society (London), seventy years ago, established the fact of the much greater prevalence of myopia among the educated classes than the uneducated. No precise observations based upon the careful examination of large numbers of eyes, however, were made until Cohn, of Breslau, in 1867, published the results of his now well-known researches.

The interest excited by these remarkable observations stimulated others to similar work, and many thousand examinations have been made, particularly of the eyes of school children, in this country as well as in Europe. The testimony of all the statistics thus collected, though varying in degree, is in the same direction, and shows a great excess of myopia among those who use their eyes in near work, and an alarming increase of the defect during school life. Dr. Siggel, among 1600 German soldiers, found that only 2 per cent. of those from the country were short-sighted, 4 per cent. of those who had been labourers in large towns, 9 per cent. of artisans, 44 per cent. of tradesmen, clerks, etc., and 58 to 65 per cent. of those who had been university students. Cohn examined the eyes of more than 10,000 school children, and found a constant progression in the percentage of myopia, as the classes advanced from year to year. The following are his figures.

Elementary schools	6.7 per cent.
Intermediate schools	10.3 "
High school	19.7 "
Colleges	26.2 "

In the high schools, 50 per cent. of the first class were found to be myopic, and 55.8 per cent. of the first class in the colleges. Erismann among 4358 school children in St. Petersburg found 10.2 per cent. of those under eight years of age, and 40 per cent. of those over twenty years of age myopic. No wonder, in the face of such startling revelations, that Dr. Loring, of New York, seriously discusses the question whether "the human eye is changing its form and becoming near-sighted under the influence of modern education," and that a recent French author exclaims in alarm that the whole civilized world is growing myopic.

Almost all the published statistics of school children have been obtained by the simultaneous examination of numbers of pupils in different stages of education, and nothing has yet been done on an extensive scale towards recording the history of individual cases. Indeed, this seems scarcely practicable unless by some systematized plan in connection with the public schools. Jaeger, years ago, recognized the importance of such records, and announced his intention of following the course of refraction in the same persons through their whole lives; for which purpose, Donders wished him "long life and faithful patients."

Dr. Hasket Derby is doing some good work in this direction at Amherst. He examined the Freshman class in 1875, with the intention of following at least four successive classes through their college course. This will test the truth of the general opinion, that there is comparatively little increase of myopia after twenty years of age, but can shed no light on the mode of its origin or the rate of its increase in the earlier stages. According to Javal, myopia rarely commences after eight or ten years of age, and, if this opinion is correct, its connection with the process of education might be somewhat complicated with the question of coincidence.

The literature of myopia has grown to be very voluminous, but, even in its more recent chapters, contains sufficient diversity of theories to show that many of the most important points connected with it are still far from settled. That its anatomical condition is a prolongation of the antero-posterior axis of the eyeball is almost the only point of universal consent; whether increased pressure or diminished resistance is the essential factor in producing this condition, and what may be the exact pathology of either, may, perhaps, be considered as open questions. Sclerotic-choroiditis posterior is generally abandoned as a prime cause, and the idealized plates with a convenient local bulging at the outer side of the optic nerve are no longer satisfying. Some authorities place their faith in hereditary weakness of the sclerotic, others assign to this cause a secondary role, and some are bold enough to discard it altogether, or even to set up race peculiarities in its place. Some charge the ciliary muscle with all the mischief and find hope only in atropia, while others accuse convergence and set the ciliary muscle to work with concave glasses. Perhaps, however, but few ophthalmic surgeons will refuse their consent to the following articles of

belief voted by the Ophthalmological Section of the International Medical Congress held at Geneva in 1877.

I. "The ordinary causes of myopia are heredity and eye work, the influence of which may be separate or combined.

II. "Hypermetropia may be transformed into true myopia, under the influence of near work, passing through emmetropia.

III. "The progress of civilization, and particularly of school education, tends to increase the extension of myopia.

IV. "The predisposition to myopia is often but not always hereditary. The influence of race upon this predisposition is still an open question.

V. "In use of the eyes for near work, three principal factors concur, with predisposed individuals, to produce the anatomical lesions of progressive myopia. These are, in the order of their importance, accommodation, convergence of the visual axes, and oculo-cephalic congestion.

VI. "The conditions of age, attitude, light, and duration, under which eye work is performed, as well as the character of the objects used, and the state of the visual apparatus itself, have a powerful influence in the development of myopia.

VII. "The prophylaxis of myopia requires a combination of individual, school, and domestic hygienic measures, in great part attainable by the co-operation of physicians, educational bodies, and the authorities. Among these measures should be included the use of convex glasses by hypermetropes."

Desiccated Ox-Blood and Hæmoglobine.—Dr. LE BON, in the *Journal de Thérapeutique* (November 25) protests against the claim which Dr. Andrew Smith and others in America have made of having invented this preparation, the full description of which he had published five years since in the *Comptes-Rendus* (1875), and notices of which were given in all the French medical journals. It has now, he states, been well tried at the Paris hospitals, and especially at the Children's Hospital, and has been found most efficacious in all cases in which re-constituents are required. It is indicated wherever iron, raw meat, or the phosphates are useful. Hæmoglobine, Dr. Le Bon says, is difficult to prepare, and in some modes of desiccation of blood all hæmoglobine is lost. He has had it prepared by a skilful chemist, and it is now in the trade. It is almost completely soluble in water, giving to this a magnificent red colour. It may be given in this way or with chocolate, or in the form of powder. The American plan of adding alcohol is chemically bad, as this precipitates the albumen. Dr. Le Bon observes that all the elixirs or wines sold containing any of the essential principles of blood or meat are an entire delusion, as they cannot contain an atom of the albuminoid principles which give to meat its nutritive properties.—*Med. Times and Gazette*, Dec. 4, 1880.

Guy's Hospital.—The *Lancet* (Dec. 25, 1880), in its summary of the events of medical interest during the past year, gives the following temperate but brief sketch of the recent troubles at Guy's Hospital which have during the past few months attracted a large share of professional attention in Great Britain.

"In the present year we have to mention with regret a disturbance of the harmony of one of our large endowed Metropolitan Hospitals, which threatens even yet to mar its historical usefulness and fame, and has already produced the resignation of its two senior medical officers, Dr. Habershon and Mr. Cooper

Forster. This discord began in an attempt on the part of the Treasurer and Governors to make fundamental changes in the nursing system of the hospital without previous consultation with the medical officers, who are as vitally interested in the efficiency and subordination of nurses and nursing as in the quality of the quinine or of the chloroform which they prescribe. As if to accentuate the scandal of a nursing system acting independently of the medical staff, two cases came to light which greatly shocked public feeling. One, that of a patient with chronic phthisis, who was subjected to a cold bath for an hour by one of the nurses, partly apparently with a penal view, and with a slight notion that it would do no harm therapeutically. Very shortly after symptoms of acute mischief in the head appeared, and soon proved fatal. The nurse was found guilty of manslaughter. In a later case a man was brought to the hospital after a fall, with a slight scalp wound. He was seen and the wound dressed by a nurse slightly. The next day he was brought back to the hospital and found to have fracture of the skull, of which he soon died. The controversy which took place between the Treasurer and the Governors, upholding the new nursing system on the one hand, and the medical men on the other, has occupied most of the year. On the part of the Treasurer and Governors it has been disrespectful and highly unmindful of what was due to the medical faculty of a hospital which has been made famous at home and abroad by its medical faculty. On the part of the medical staff there has been a want of decision, strength, and, we had almost said, self-respect; but it would be more proper to say respect for the profession they represent. Although, however, the senior medical officers have resigned, the public scandal remains of a great hospital so badly administered financially that it is deeply in debt, that nearly a hundred beds have had to be closed, and that by a system of self-election on the part of the Governors medical men have gradually been ousted from the Board of Management, and that the admission of two is now conceded as a sop to public and professional indignation. Clearly, we have not got to the end of the crisis at Guy's, which discredits the year 1880. But good will yet come out of it."

Rupture of the Vermiform Appendix.—The subject of this case was a robust soldier, forty-five years of age, who had been in good health until a week before, was brought into the hospital with the symptoms of peritonitis, and died two days afterwards. On examination, a large quantity of purulent fluid was found in the cavity of the abdomen, and the vermiform process, nearly five times its natural size, exhibited a large aperture, while its communication with the intestine was obstructed by a long bean-shaped concretion of a greenish colour. On cutting through this, there was found as its nucleus at the centre a piece of husk of rye, around which had formed deposits of phosphate and carbonate of lime, the calculus having attained a centimetre in diameter before it caused rupture of the process. The case differs from most of those on record in having caused rupture by distension, instead of by ulcerative process.—*Med. Times and Gaz.*, Jan. 8, 1881, from *Petersburg Med. Week.*, 1880, No. 40.

Instantaneous Rigor Mortis.—Dr. J. EWING MEARS writes to us that "In a copy of the *London Times* of November 7, 1805, which has recently come into my possession, I find the following paragraph, forming a part of a description of the memorable naval engagement between the English and allied French and Spanish fleets off Cape Trafalgar:—

"A man was so completely cut in two by a double-headed shot, that the whole of his body, with the exception of his legs up to his knees, was blown some yards into the water; but, strange to tell, his legs were left standing on the deck with all the firmness and animation of life."

"As I do not know of any report of this remarkable case in surgical works, it has occurred to me that it would be well to record it at this time."

The retention in death of the last attitude of life as the result of instantaneous rigor, accompanying sudden and violent death, has attracted but little attention. A very interesting paper on the subject, illustrated by some remarkable cases observed in the War of the Rebellion, was published by Dr. John H. Brinton in the number of the *American Journal of the Medical Sciences* for January, 1870, p. 87.

Listerism in Japan.—Miss Isabella Bird, in her recent charming work, "Unbeaten Tracks in Japan," describes a visit to a native hospital at Kubota, under the charge of Dr. Kayobashi, who "is fresh from the medical college at Tôkiyô, and has introduced the antiseptic treatment with great success." Miss Bird says: "the odour of carbolic acid pervaded the whole hospital, and there were sprays enough to satisfy Mr. Lister! At the request of Dr. Kayobashi I saw the dressing of some very severe wounds carefully performed with carbolized gauze, under spray of carbolic acid, the fingers of the surgeon and the instruments used being all carefully bathed in the disinfectant."

Société Medico-Psychologique of Paris.—Dr. John P. Gray, of the Utica Asylum, has been elected an Associate Member of this Society.

An Ingenious Suggestion.—A French philanthropist proposes to diminish the mortality amongst the wounded in war by tattooing on the soldier's body the principal points where compression may be made in cases of hemorrhage. Life may be lost in a few minutes by a wound of a large artery, and it is thought that the soldier might often escape if he knew where to command an artery whilst waiting for help.

Ovariectomy during Pregnancy.—KARL SCHREDER (*Zeitschrift für Geburtshilfe und Gynäkologie*), on the strength of seven successful ovariectomies during pregnancy performed by himself, and fourteen performed by Olshausen, with only two deaths, considers that ovariectomy, during pregnancy, is an operation not to be feared especially, and only to be avoided when especial contraindications are present. It improves the prognosis, he considers, for the mother, and probably does not injure it for the child. The operation is best performed during the earlier months of pregnancy; later, the broad ligaments are so full of dilated veins, that the treatment of the pedicle becomes more difficult and more dangerous.—*British Med. Journal*, Dec. 25, 1880.

Peritoneal Transfusion of Blood.—The transfusion of blood into the peritoneal cavity recommended by Ponfick, and supported by the experiments of Bizzozero and Golgi, has been recently practised in Italy with marked success. The case is reported in the *Annali di Ostetricia* of June last. The patient, who was moribund from hemorrhage after parturition, was transfused with 200 grammes of defibrinated blood taken from a man by venesection, and injected into the peritoneal cavity. There was no reaction; and the patient made an excellent recovery. The method is one which seems to deserve trial in this country.—*British Med. Journal*, Dec. 25, 1880.

Medical and Surgical History of the War.—A bill is now before Congress for the printing of fifty thousand copies of the four volumes which have been already

issued of the "Medical and Surgical History of the War of the Rebellion." Should the bill become a law, these books will be distributed gratuitously by Members of Congress, and consequently early application should be made by constituents desiring them.

The Introduction of Vaccination into America.—Dr. HENRY A. MARTIN, of Boston, gives in the *North Carolina Medical Journal*, for January of this year, a very interesting sketch, with fac-simile letters, of the efforts made by President Jefferson to extend the introduction of vaccination into this country at the beginning of the century.

International Medical Congress, London, 1881.—The following subjects, in addition to those previously announced, have been proposed for discussion:—

Section IV. (*Medicine*).—1. Localization of Disease in Brain and Spinal Cord, so far as pathognomonic and diagnostic; 2. Trophic Changes of Nerve-origin; 3. Vascular Changes, Functional and Organic, in Disease; 4. Primary Diseases of the Lymph-system; 5. Gout, Rheumatoid Arthritis, and Rheumatism; 6. Forms of Renal Disease (Bright's Disease); 7. Methods of Physical Diagnosis; 8. Therapeutic Methods: Revulsions, Blood-letting, Diet-cure, Uses of Heat and Cold, Drug-cure, etc.

Section I. (*Anatomy*) will receive communications relating to any of the following subjects: 1. Human Anatomy, descriptive, microscopic, and topographical; 2. Embryology and Teratology; 3. Anatomical Anthropology and Anthropometry; 4. Comparative Anatomy in so far as it illustrates structural changes in Man; 5. Improved Methods of Instruction in Anatomy, and of preparing and preserving Anatomical Specimens.

Section XI. (*Diseases of the Skin*).—1. The Relation between Constitutional Diseases and Diseases of the Skin; 2. The Nature and Treatment of Lupus Erythematosus; 3. The Influence of Climate, Difference of Race, and Mode of Living upon the Development and Character of Diseases of the Skin.

Louisiana State Medical Association.—The fourth annual meeting of this society will be held at New Orleans, on March 30, under the presidency of Dr. C. M. Smith, of St. Mary.

Statistics of Medical Journalism.—On the authority of M. DUREAU, one of the librarians of the Académie de Médecine, the present number of medical periodical publications for France and its colonies is 147, 95 of these being published in Paris, and 52 in the departments. The Germanic Confederation publishes 133 journals, Great Britain 69, Austria 54, Italy 51, Belgium 28, Spain 26, Russia 26, Holland 16, Switzerland 10, Sweden and Norway 9, Denmark 5, Portugal 4, the Danish Principalities 4, Turkey 2, Greece 1—the total for Europe being 583. In America there are 183 journals, in Asia 15, in Oceania 4—the total for the various continents being 785. The number of medical journals created since 1679 exceeds 2500.—*Med. Times and Gazette*, Jan. 22, 1881, from *Lyon Médical*.

To Readers and Correspondents.—The editor will be happy to receive early intelligence of local events of general medical interest, or which it is desirable to bring to the notice of the profession. Local papers containing reports or news items should be marked.

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